

# The Canadian Medical Association Journal

---

VOLUME 75

JULY-DECEMBER 1956



*Editor*

S. S. B. GILDER, T.D., M.B., B.S., B.Sc.

*Published by*

THE CANADIAN MEDICAL ASSOCIATION





# The Canadian Medical Association Journal

JULY 1, 1956 • VOL. 75, NO. 1

## THE RHINOLOGIST'S CONTRIBUTION TO THE TREATMENT OF LACRIMAL OBSTRUCTION: A PLEA FOR TEAM-WORK\*

RONALD MACBETH,<sup>†</sup> *Oxford, Eng.*

THE LACRIMAL PASSAGES begin in the eyes and end in the nose, so they are of interest both to the ophthalmologist and to the rhinologist. It is not unnatural therefore that in cases of obstruction, both kinds of specialist claim to be able to relieve the patient.

Again as a consequence of their different types of training, the eye man will tend to favour ophthalmological techniques, while the nasal surgeon will tend to bring his knowledge of nasal anatomy to bear on the problem. It is my purpose to suggest that the best results can be achieved where the two specialists act together, each contributing those items of technique which he is the more competent to offer.

As a routine, the rhinologist should check the patient for sinusitis and should put right anything he finds, but almost never is such action more than incidental; the same thing applies to septal deformities. My plea is that we rhinologists can help in the operation for the prime factor, namely chronic dacryocystitis.

This condition leads commonly to a stenosis of the duct below the sac, and less frequently to strictures of the canaliculi. Occasionally, however, the rhinologist is to blame by reason of injury to the duct during an intranasal antrostomy or a transantral ethmoidectomy. In a sense, therefore, the rhinologist may contribute to the problem by causing it.

## ETIOLOGY OF DACRYOCYSTITIS

Very much less clear, however, are the events which lead to inflammation of the lacrimal sac. A search of the literature reveals that one school of thought regards nasal infection as the direct cause. On the whole, ophthalmologists belong to this body of opinion.

The infection, it is said, may ascend in the walls of the lacrimal duct from the nasal floor; or adjacent sinusitis may cause an osteitis around the duct and so lead to a stenosis. The rhinologist is inclined to retort that the nasal ciliary stream is away from the mouth of the duct; that sinusitis is far commoner than is dacryocystitis; that in cases of acute maxillary sinusitis, lacrimation is rare; and finally that patients with dacryocystitis hardly ever confess to many nasal infections, and almost never have discoverable sinusitis when they present themselves.

The other school of thought ascribes the occurrence of dacryocystitis to infections descending from above, i.e. to repeated attacks of conjunctivitis. Rhinologists tend to favour this view, and on the face of it, the assumption is not unreasonable. Unfortunately, however, conjunctivitis is a very common ailment and rarely is it to be found as an immediate antecedent in the history of a case of dacryocystitis.

The literature is voluminous and, as Duke Elder says in his textbook, the two schools of thought tend to be "totalitarian" in their outlook.

It is not clear to me, however, why it is necessary to take up a firm stand on either side. We know that acute tonsillitis may occur many times without leading to a quinsy, but a quinsy undoubtedly results from an attack of tonsillitis. An acute rhinosinusitis may occur many times without specific infection of the frontal sinus and blockage of its duct; yet frontal sinusitis in the surgical sense must be regarded as the sequel to an infection ascending by continuity of mucosa or via the lumen of the frontonasal duct. It would seem reasonable therefore to

\*Presented at the Annual Meeting of the Canadian Otolaryngological Society at Bigwin Inn, Ont., June 1955.  
<sup>†</sup>Department of Otolaryngology, The Radcliffe Infirmary, Oxford, England.

assume that an infection of the sac may occur from above or below, and the reason why only a few people get it among the thousands who have sinusitis or conjunctivitis is to be sought on anatomical grounds.

For example, the condition of lacrimal obstruction may be congenital, and dacryocystitis may show itself within a week or so of birth. It may be familial, and in my experience there has been one pair of twins who each had the condition on both sides. Finally, it occurs in women three or four times more frequently than in men. It is not unreasonable to assume, therefore, that in normal persons the lacrimal system is wide enough to drain even in cases of transient infection, but that in those with congenitally narrow ducts repeated mild infections ultimately lead to stenosis.

#### METHODS OF TREATMENT

For obvious reasons, the patients rarely come to me in the first instance, and it is not my purpose to discuss the pros and cons of conservative and operative treatment. I am concerned solely with the operative treatment of the established case, referred to me for joint action by my ophthalmological colleagues.

#### TYPES OF OPERATION

1. The intranasal operation of West has given reasonably good results in the past. The interior surface-marking of the sac on the lateral wall just in front of the middle turbinate is approached via the same nostril, an area of bone is removed and the sac drained. This operation is technically difficult even for a rhinologist.

2. The trans-septal approach of Kofler and Urbanek gives a very much more satisfactory exposure of the lateral nasal wall, and, where the sac is large, it may even be possible to suture the mucosal layers.

Both of these methods fall down on several counts:

(a) They assume familiarity with intranasal operative methods.

(b) Incision of the correct layer of the sac may be difficult.

(c) Accurate anastomosis of mucosal layers is virtually impossible.

(d) It is not possible to inspect the inner orifice of the canaliculi.

3. The Toti type of operation. Here, an incision is made in the skin over the sac; the latter

is inspected, opened with certainty into the correct layer, and contiguous parts of the sac and nasal mucosa are punched away under vision.

4. The Dupuy-Dutemps type of operation. The approach is similar to that for the Toti operation, but a careful anastomosis of sac and nasal mucosa is carried out. The surgical canons of wide exposure, good access and layered suturing are therefore observed.

A theoretical objection is the need for an incision which may leave a scar, but if this be planned to fall in a crease, it is virtually invisible after a few months.

In Oxford, we have developed a type of dacryocystorhinostomy, following the basic technique of Dupuy-Dutemps, in which the rhinologist makes the incision, does the bone work and exposes an area of lateral nasal mucosa in front of the middle turbinate; the eye man then does whatever he thinks necessary in the way of probing the canaliculi, and anastomoses the sac with the nasal lining. The nose man then sews up the skin and fascial layers.

The operation is conducted in our department, and after three days the patient is transferred to the eye department.

#### THE TECHNIQUE

The *anæsthetic* of choice in adults is a local. This ensures a minimum of bleeding and therefore a maximum of accuracy.

The method employed on my behalf has been worked out by the members of the Department of Anæsthetics at the United Oxford Hospitals, and I am indebted to Professor Sir Robert McIntosh and Dr. Roger Bryce Smith for their help.

After suitable premedication, an anterior ethmoidal infratrochlear nerve block is carried out with Xylocaine 1½% and adrenalin 1:100,000. This solution is then used to infiltrate the superficial tissues of a half-moon-shaped area on the side of the nasal bridge and on the upper part of the maxilla. The nasal cavity is painted with a paste containing 25% of cocaine ("Mosher's mud"), and four wool-carrying probes are left in the nostrils as in the technique of a Sluder nasal block. (Both nostrils are treated thus in case any septal operating is needed.) Finally three drops of a 10% solution of cocaine hydrochloride are instilled into the eye. Any intranasal surgery required is done first. It is wise not to amputate pieces of middle



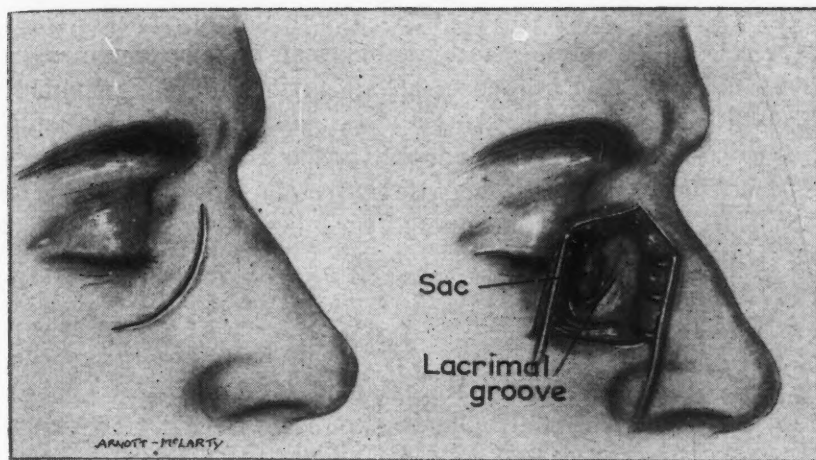


Fig. 1.—Shows the incision.

Fig. 2.—Shows the exposure of the sac.

turbinate because this may lead to scarring near the new drainage site for the duct.

The incision should be generous. It should commence on the nasal bone just above and well medial to the inner canthus, and should be carried in a curve below the lower lid, following a skin crease. The incision is carried to bone, and bleeding points are picked up. A self-retaining mastoid retractor is inserted.

The periosteum is pushed off the nasal bone, and the sac is defined and dislocated laterally out of its bed in the lacrimal bone. Care is taken not to penetrate the postlacrimal fascia and not to expose orbital fat.

The sac is held laterally by means of a flat retractor, if this be necessary, and the bony bed of the sac and its medially contiguous nasal bone

are burred away with a dental drill. The bone dust is removed by saline irrigation and suction.

The intact nasal mucosa is thus brought into view, and the bony hole is enlarged by means of Sluder's sphenoidal punch forceps. At this point, it may happen that a forward-lying anterior ethmoidal cell is entered, but this is of no consequence.

A spur of bone now separates the sac from the nasal mucosa in the region of the duct; this is partly lacrimal bone, and partly nasal process of maxilla.

This should either be burred down or nibbled away. Its removal is important if good apposition of sac and nasal mucosa is to follow.

A strip of one-inch (2.5 cm.) ribbon gauze is now packed into the nostril. This is a valuable manoeuvre because it bulges the nasal mucosa outwards and facilitates the cutting of flaps.

The ophthalmologist now takes over. At an earlier stage, he may have probed the canaliculus and inserted a small dilator; or he may have injected a little aqueous methylene blue.

He makes incisions like the letter H lying on its side, thus producing flaps which resemble the leaves of a book. These are usually fashioned unequally, so that a long flap goes to a short posteriorly and a short to a long anteriorly. The

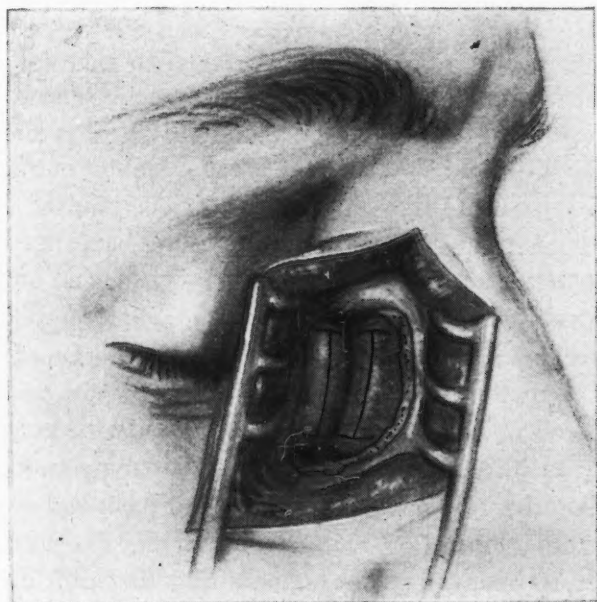


Fig. 3.—Shows the exposure of the mucosa of the lateral nasal wall, with an indication of the incision made in order to fashion flaps.

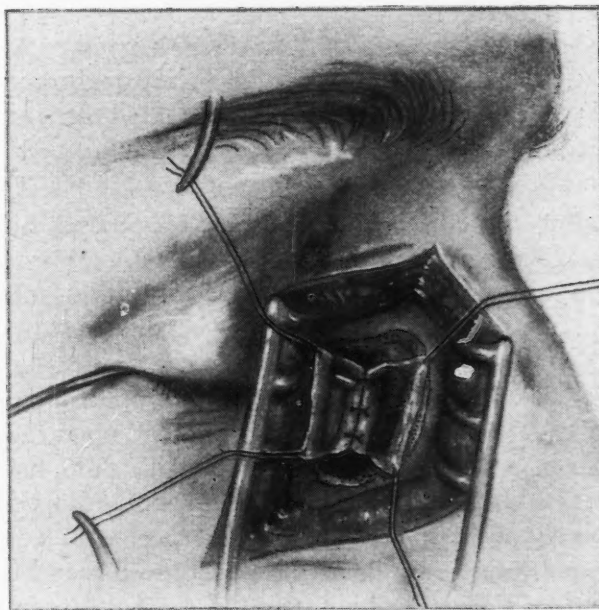


Fig. 4.—Shows the posterior (or deep) flaps united, the superficial flaps being held in retraction sutures. A metal sound has been passed along the canaliculus and is visible inside the sac.

suture material has usually been catgut. It is obvious that the apposition of such flaps will leave a gap superiorly which will be covered only with subcutaneous tissue, and that this will heal by scarring, but provided that the canaliculus is patent and opens on to a mucosal surface, this should matter very little.

The superficial tissues are now sutured. I feel that it is particularly important from a cosmetic point of view to approximate the subcutaneous layer accurately with interrupted sutures. This allows the skin to be sutured entirely without tension. For this purpose, I favour fine stainless steel wire, since it is a suture material which is almost completely non-irritant to tissues.

A vaselined eye-pad is applied and a pressure dressing of wet cotton wool built up over the incision. The dressing is removed next day and the skin stitches are taken out on the third post-operative day. From this moment, the after-care is in the hands of the eye man, who usually contents himself with syringing through the duct a few times. The operation day and postoperative four days are covered by systemic sulfonamide and penicillin therapy.

#### TYPES OF CASE

The technique described is most satisfactory to carry out and most successful in its results in those cases where the sac is normal in size or dilated, and where the canaliculus is patent at both ends.

Small fibrous sacs can, however, be treated in a similar manner, and one has every reason to expect a good functional result provided that the medial end of a patent canaliculus can be anchored to a piece of nasal mucosa.

But the canaliculus may be obliterated by scarring at its entrance to the sac. Abscesses in the sac or injuries are liable to lead to this kind of situation. In this case, the canaliculus can usually be carefully probed and the scar tissue broken through or removed; the ophthalmic surgeon then passes a fine nylon thread upon the eye of a needle along the canaliculus into the nose and out through the nostril. This is looped loosely to itself and fixed to the face so as not to cut into the walls of the punctum. It may be left in place for about 10-14 days, but should be adjusted or removed at the first sign of damage to the punctum. It should be strongly

emphasized that a functioning result from dacryocystorhinostomy can only be obtained in the presence of an intact inferior punctum. Previous surgery by slitting or appreciable damage by inserted nylon always seems to prevent an otherwise perfect dacryocystorhinostomy from functioning.

#### RESULTS

In the last seven years, 87 cases have been treated by this method in the United Oxford Hospitals. Of these, 63 have been my own concern, and 16 have been done by trainees. My three ophthalmic colleagues have made use of minor differences in technique, and my rhinological colleague similarly.

Of these patients, 59 have shown unscarred sacs (including mucocœles), 20 scarred fibrous sacs, and 9 stenosis of the canaliculus.

	<i>Unscarred sacs</i>	<i>Scarred sacs</i>	<i>Stenosed canaliculi</i>
Total cases.....	59	20	9
Untraced.....	1	4	2
Net cases.....	58	16	7
Patent to			
syringing.....	53 (91.4%)	15 (93.8%)	3 (43%)
Epiphora cured..	46	11	3
slight.....	7	4	—
unaltered....	5 ( 8.6%)	1 ( 6.2%)	4 (57%)

#### DISCUSSION

It is sometimes maintained by ophthalmologists that it is only necessary to drain the sac into the nose in these cases, and that therefore the more elaborate methods described are unnecessary. It is suggested that suturing of layers is not needed, and that the stitches slough out in a few days anyway because of local sepsis. I would agree that satisfactory results have been obtained transnasally, but such operations do not permit of an inspection of the whole upper lacrimal tract. Similarly in Toti's operation, it is a matter of chance whether or not the sac closes again. In my rather limited experience of them, such patients need very much more post-operative treatment than those who have had an external operation via a generous incision with suture of layers. This suggests that the suturing holds together long enough to make the flaps adhere in their new position.



The scarring consequent upon this type of operation has been decried, but, in fact, it is barely visible after a few months.

Finally, I would justify the rhinologist's contribution by mentioning how valuable are the dental burr and the sphenoidectomy punch forceps in this operation, and by noting that he may need to be on the scene anyway in order to deal with gross septal deviations. It is rare to find an eye man who is really happy doing bone work, though a few have indeed familiarized themselves with the techniques involved, and their results are excellent. Conversely, few of us rhinologists are really happy probing canaliculi or doing the fine suturing under magnification practised by our ophthalmological colleagues. And if the truth be told, we do not do these things very gently or very well.

#### SUMMARY

1. The etiology of chronic dacryocystitis and lacrimal obstruction is discussed.
2. Methods of operative cure are mentioned.
3. A modified Dupuy-Dutemps technique is described where the rhinologist makes the incision and does the bone work, and where the ophthalmologist explores the canaliculi and anastomoses the sac with the nasal mucosa.
4. Analysis of results suggests that anatomical success in over 90% may be expected in cases where the canaliculus is patent, and in 43% where it is stenosed.

I am indebted to my ophthalmological friends, Messrs. J. P. F. Lloyd, A. C. Houlton, and R. S. McLatchey, for inviting me to assist them with their patients and for permitting me to base this paper upon our collaboration; also to my colleague Gavin Livingstone for permission to include his cases in my survey.

#### PROLAPSE OF RECTUM\*

J. D. MILLS, M.D. and  
W. R. LAWLER, M.D., *Toronto*

TRUE PROLAPSE of the rectum is really a sliding hernia with a definite sac and hernial orifice. It is believed to result from attenuation and laxity of the levatores ani and other supporting structures of the pelvic floor. The opening in the pelvic diaphragm through which the rectum passes is enlarged, and the pouch of Douglas pushes downward in front of the rectum. The levatores ani are further separated, the fascia becomes progressively weaker, and the anterior wall of the rectum protrudes through the anal canal accompanied by the peritoneal sac anteriorly. Because of repeated dilatations by this mass, the anal sphincters become lax and atonic. After reduction of the prolapse, it may be observed that pressure anteriorly with the finger in the anal canal will control the prolapse even when the patient strains.

The object of the repair of a hernia in this situation is the same as that elsewhere: to

excise the sac and obliterate the opening through which it comes. But this hernia is complicated by the fact that the rectum must pass through the "pillars of the ring". The rectum is at times collapsed and at times distended. The supporting structures do not hold when repaired, especially when bowel movements must occur before their complete healing.

To ensure a good result it is essential that the tone of the anal sphincter be restored. There is probably a congenital weakness of the levators, and they may never recover their tone under any circumstances. The sphincter, which has been grossly dilated by the repeated protrusions of the mass through the anus, if given rest and then exercises will and does recover its tone.

The multiplicity of operations described for this condition is an indication of the difficulty in obtaining good results. The following is a short review of both the perineal and abdominal operations commonly performed.

#### A. PERINEAL APPROACH

Gabriel<sup>1</sup> has outlined the many procedures that have been used in the past:

(a) Injection of sclerosing solutions submucosally or pararectally: phenol in oil, absolute alcohol<sup>2</sup> and hydrochloric acid<sup>3</sup> have been used.

\*From the Department of Surgery at Sunnybrook Hospital (Department of Veterans Affairs). Dr. J. D. Mills is the surgeon in charge of the Division of General Surgery at Sunnybrook Hospital, and a clinical teacher in the Faculty of Medicine at the University of Toronto. Dr. Lawler, when he collaborated with Dr. Mills, was Resident Surgeon in the Division of General Surgery.

(b) Insertion of foreign bodies or fascia<sup>4</sup> to narrow the anal canal. Silver wire was originally used by Thiersch and the operation bears his name.

(c) Posterior fixation of the rectum to the sacrum by suture<sup>5</sup> or packing.<sup>6</sup>

(d) Plastic operations on perineum and sphincters.

(e) Linear cauterization of mucosa<sup>7</sup> or removal of mucosa from apex of prolapse to skin, approximation of edges and puckering of the wall. In a discussion on this subject, David<sup>8</sup> of Chicago stated that this operation, originally described by Delorme in 1890, had yielded good results in 12 cases.

The perineal operation most favoured is that described by Mikulicz<sup>9</sup> and modified by Miles<sup>10</sup> and others. This is a recto-sigmoidectomy. The prolapse is incised circularly just below the anus; the peritoneal sac is identified anteriorly, the excess is excised and the edges are closed. The rectum is then pulled downward until all laxity has been taken up and an end-to-end anastomosis is done between recto-sigmoid and anal canal.

At the completion of this procedure, the anastomosis lies just inside the anus. Some surgeons draw together the levatores ani before the anastomosis is performed. Troublesome complications are: separation of the suture line with pelvic abscess, and stricture formation. Gabriel reports a mortality rate of 3.1% in 64 cases done in this manner. Of 38 patients traced, five had a recurrence of prolapse (13%) and three suffered from rectal incontinence.

Pemberton<sup>11</sup> reported a recurrence rate of 43.6% in 149 patients who had perineal operations of all types. Stricture formation was present in 29.8%.

#### B. ABDOMINAL APPROACH

Several different types of operations are described. Moschcowitz<sup>12</sup> placed sutures circularly around the pelvic peritoneum, taking up the excess and obliterating the pouch of Douglas. This has been found to be inadequate. In 46 cases followed up at the Mayo Clinic,<sup>11</sup> the recurrence rate was 63%; in other smaller series reported it was 30-50%.<sup>1, 4, 7</sup>

Graham<sup>8</sup> opened the pouch of Douglas and after identifying the ureters approximated the levatores with silk mattress sutures, forcing the rectum back towards the sacrum. This restored

the normal angle between the rectum and anal canal, which he felt was very important. The redundant peritoneum was then excised and the cul-de-sac obliterated. He reported three cases with good results. There are no other reports on results of this operation; perhaps its technical difficulty has prompted other surgeons to seek different methods.

Orr<sup>15</sup> suspended the redundant sigmoid to the anterior sacral fascia, using strips of fascia which were woven through the rectal wall. Six cases have been reported with good results.<sup>15, 16</sup>

The sigmoid has also been attached to the abdominal and pelvic walls and exteriorized through the fascia. In most cases, the cul-de-sac is obliterated as well.

Pemberton<sup>11</sup> preceded suspension of the sigmoid by dissection of the presacral space down to the coccyx. Occasionally, a pack was placed in this space to further stimulate adhesions. His results are certainly the best reported—in 44 cases there were only two complete and three mucosal recurrences (11.4%).

Dunphy<sup>13</sup> described a combined approach because he felt that the peritoneum and transversalis fascia could not be dealt with from below, nor could the levatores and pelvic fascia be easily plicated from above. A recto-sigmoidectomy was done first by the perineal approach, and about one week later the cul-de-sac was obliterated and the colon suspended from above. He reported good results in five cases.

From a study of these procedures, it seems that the important steps in the cure of rectal prolapse are:

1. *Excision of the redundant peritoneum—the hernial sac.*

2. *Adequate fixation of the rectum and sigmoid in a new elevated position.*

Approximation of the levatores ani has not improved the results, probably because the supporting structures are inadequate in this condition. A third principle should be added if the operative steps are to be successful.

3. *Rest.* This is most important and is not accomplished by simply putting the patient to bed in the Trendelenburg position and preventing bowel movements for ten days. Tissues are just nicely beginning to heal at the end of that time. Adequate rest of the rectum is only provided in one way—by defunctioning the bowel. The patient may then be ambulant and on a full diet in 7-10 days. The rectum remains at rest. New



adhesions are allowed to consolidate completely without being disturbed by a peristaltic rush. Their adequacy is imperative if prolapse is not to recur.

The importance of preoperative and postoperative sphincter exercises has been mentioned by many writers, but surely tone is better regained by preventing dilatation. The sphincter is stretched no longer, exercises are more effective, and the tissues lose their oedema and again function as a composite unit. The sequel of mucosal prolapse is prevented. One has only to recall the observation of a tight sphincter after defunctioning the rectum for other reasons to appreciate this fact.

#### PERSONAL TECHNIQUE

It is felt that the ultimate result of the operation to be described is a fixation of the recto-sigmoid in a new elevated position rather than a restoration of the levators and other supporting structures of the pelvic floor. The sac is excised and the recto-sigmoid suspended in a new elevated position. After operation the bowel gradually settles back into the hollow of the sacrum and becomes adherent there at a new high level. The permanent fixation of the bowel in this new position is greatly assisted by the defunctioning colostomy which allows it to remain undisturbed until it has become firmly adherent.

The approach is by a lower right rectus incision. After abdominal exploration, the table is tilted and the small bowel is packed away. The rectum and sigmoid are found to be excessively mobile and the peritoneum is lax and folded upon itself in the cul-de-sac.

A U-shaped incision is started on either side of the sigmoid and continued anteriorly to meet between the bladder and rectum. The lateral pelvic peritoneum is then elevated, and a large flap of excess peritoneum is demonstrated (Fig. 1). During this procedure the ureters are identified. Without disturbing the blood supply, the rectum is now mobilized as in an abdominoperineal resection—to the tip of the coccyx behind and lower border of the prostate in front. The upper parts of the lateral rectal ligaments are freed.

The rectum can now be lifted up 5-6 inches (12.5-15 cm.) higher than before, and the divided edge of peritoneum will be at or above the pelvic brim (Fig. 1). A loop colostomy is then performed

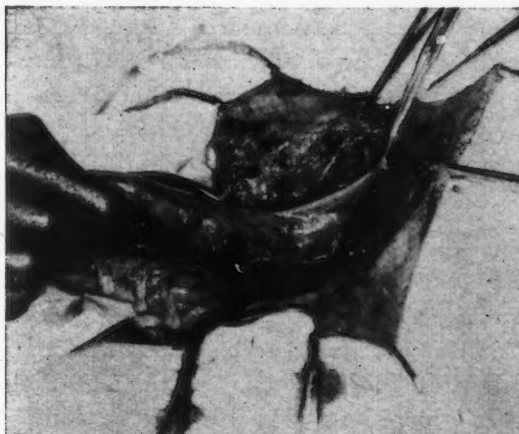


Fig. 1

through a short incision in the left lower quadrant. A site is chosen in the sigmoid, so that the distal bowel is held taut and the chosen two limbs of the sigmoid are sewn together as in a Mikulicz procedure to facilitate closure of the

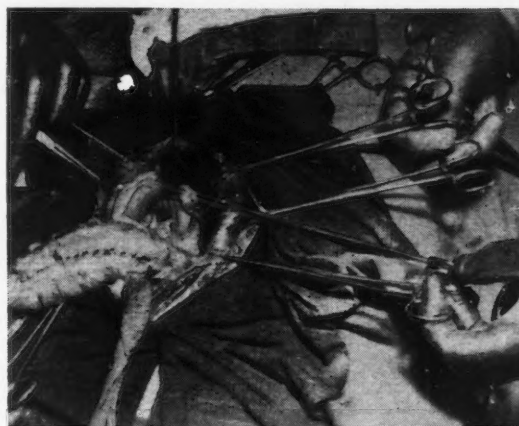


Fig. 2

colostomy at a later date (Fig. 2). A soft rubber drain is inserted extraperitoneally into the pelvis and brought out through a stab wound in the right lower quadrant. The gutter lateral to the colostomy is closed, the redundant peritoneum



Fig. 3

which was previously mobilized (the sac) is now excised and a new pelvic floor is formed by suturing the edges of the remaining lateral peritoneum adherent to the rectosigmoid (Fig. 3). The abdomen is closed.

The patient is allowed up in 7 or 8 days and is discharged in 2-2½ weeks.

The colostomy can be closed in 3-6 months depending on the size of the prolapse, which determines the degree of dilatation of the sphincter. In the first cases treated, the interval between operations was excessively long and with further experience it has been shortened.

### RESULTS

This operation has been used in the treatment of eight patients. Six of these cases have been followed up for 9½, 6½, 3, 1½, 1, and 1 year respectively, with no recurrence and full sphincter control. One patient has been operated upon recently. Another died of an unassociated disease five months after operation. The simplicity of the operation, the low incidence of complications and the uniformly good results obtained have prompted this report.

We have found that patients suffering from this debilitating and intractable condition feel that a temporary colostomy is a small price to pay for complete relief.

Two illustrative cases are briefly reported.

The first, H.L.E. (Fig. 4), had an extremely large prolapse, 6 inches in length by 4 inches in diameter. This patient was an Indian who had had a gradually enlarging prolapse since the age of 15. In 1942 a local operation had been done; he joined the army but was discharged in 1944 because of recurrence and inability to perform his duties. Operation was performed in

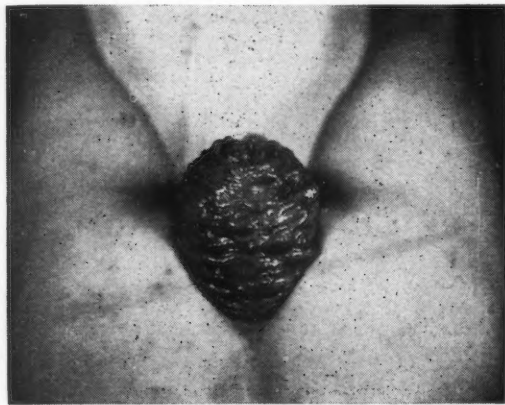


Fig. 4

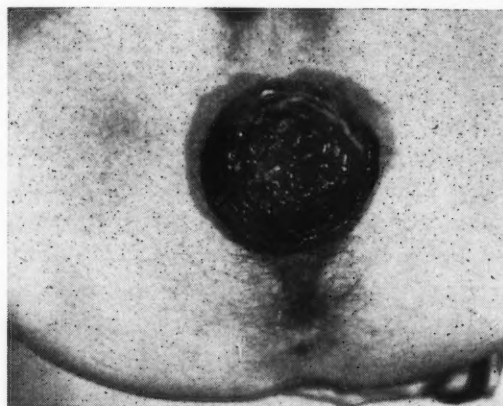


Fig. 5

March 1945, in his 28th year. The colostomy was closed in July 1946 and he returned to a life of hunting and trapping. He has had no recurrence.

Another patient, J.A.F. (Fig. 5), was a padre, aged 28. He complained of a protruding mass for nine years gradually enlarging until five years previously when it became uncontrollable and began bleeding occasionally. He was operated upon in April 1948. The colostomy was closed elsewhere about four months later. The patient has since served with the Canadian Forces in Korea and now has a parish in Canada.

### SUMMARY:

1. The various operations for prolapse of the rectum have been briefly reviewed. The recurrence rate varies from 10-60% in different series.
2. It is suggested that postoperative rest of the sphincter and the other pelvic structures involved is a most important step in treatment.
3. This is best accomplished by colostomy. It allows consolidation of adhesions holding the rectum in its new position and promotes a return of tone of the rectal sphincter.
4. The colostomy is closed in 3-6 months.
5. Eight cases have been satisfactorily treated by this method without recurrence.

### REFERENCES

1. GABRIEL, W. B.: The principles and practice of rectal surgery, 4th ed., W. K. Lewis Co. Ltd., London, 1949, p. 106.
2. FINDLAY, L. AND GALBRAITH, J. B. D.: *Lancet*, 1: 76, 1923.
3. HANES, G. S.: *Tr. Am. Proct. Soc.*, 1928, p. 112.
4. MAYO, C. W.: *West. J. Surg.*, 46: 75, 1938.
5. TUTTLE, J. P.: A treatise on diseases of the anus, rectum, and pelvic colon, D. Appleton & Co., New York, 1902.
6. LOCKHART-MUMMERY, J. P.: Diseases of the rectum and anus: a practical handbook, Baillière, Tindall & Cox, London, 1914.



7. VAN BUREN, W. H.: Lectures upon diseases of the rectum. Delivered at the Bellevue Hospital Medical College, 2nd ed., D. Appleton & Co., New York, 1881.
8. GRAHAM, R. R.: *Ann. Surg.*, 115: 1007, 1942.
9. MIKULICZ, J.: *Arch. klin. Chir.*, 38: 74, 1888.
10. MILES, W. E.: *Proc. Roy. Soc. Med.*, 26: 1445, 1933.
11. PEMBERTON, J. DE J., KIERNAN, P. C. AND PEMBERTON, A. H.: *Ann. Surg.*, 137: 478, 1953.
12. MOSHCOWITZ, A. V.: *Surg., Gynec. & Obst.*, 15: 7, 1912.
13. DUNPHY, J. E.: *Ibid.*, 86: 493, 1948.
14. HAYDEN, E. P.: *S. Clin. North America*, 27: 1062, 1947.
15. ORR, T. G.: *Ann. Surg.*, 126: 833, 1947.
16. LEVY, A. H. AND JOHNSON, V. S.: *Ibid.*, 133: 244, 1951.

# RÉSUMÉ

Le prolapsus du rectum peut être considéré comme une forme de hernie, probablement causé par un relâchement des releveurs de l'anus et des autres

structures du plancher pelvien. Comme dans les autres formes de hernies, le but de l'intervention est d'éliminer le sac herniaire et d'oblitérer l'ouverture par laquelle il s'échappe. Il est essentiel de restaurer le tonus du sphincter anal pour obtenir un bon résultat. Les auteurs récapitulent les différentes techniques chirurgicales avec leurs multiples modifications dans l'intervention tant par voie périnéale que par voie abdominale. Les récurrences se présentent dans 10 à 60% des cas. Il semblerait que le repos post-opératoire du sphincter et des autres structures du bassin soit un des aspects les plus importants du traitement. La colostomie permet un certain degré de consolidation par la création d'adhérences conservant ainsi le rectum dans sa nouvelle position et permettant une régénération du tonus musculaire. Cette colostomie est refermée entre trois et six mois plus tard.

M.R.D.

## URETERAL BLOCK AND KIDNEY FUNCTION\*

GUILLAUME GILL, M.D.,† Montreal

DURING RADIOLOGICAL examinations performed on patients suffering from renal colic, it is fairly common to encounter ureteral calculi located at different levels.

According to the site of these calculi and to the amount of blockage of ureteral transit, renal function may be altered or even destroyed if necessary action is not taken early enough. The object of this paper is to guide the interpretation of radiological findings, mostly during the mechanical phase of ureteral transit, so as ultimately to prevent kidney function from being lost permanently.

The co-operation of the surgeon or urologist is essential for application of appropriate treatment to save kidney function.

In our Department of Radiology at l'Hôtel-Dieu de Sorel, from 1949 to 1955, there has been opportunity to observe, at various degrees and levels, 75 cases of ureteral obstruction by calculi or blood clot, exclusive of other pathological conditions, in the course of 943 intravenous urography examinations (Table I).

It is interesting to note that in 20 of these cases obstruction was in the upper third of the ureters, the majority in male patients and on

the right side. In 10 cases the obstruction was situated in the lumbar region; 8 of these patients were male. In 44 cases, calculi were observed in the pelvic region, again with a higher incidence in men, although on the left side.

Thirty-five calculi were spontaneously eliminated after only medical treatment and supervision of the renal function. Of this number, two calculi were in the upper region and five in the middle part of the ureters. The others were in the lower or pelvic portion.

Thanks to the collaboration of Dr. Georges Montel, Surgeon-in-Chief, 18 patients were operated on immediately after radiological examination had revealed the exact site of obstruction, and that physiological function of the kidney involved was seriously threatened. In 9 patients, calculi or blood clot (1 case), situated in the upper part of the ureters, was removed; in 5 cases obstruction was removed in the lumbar area, and in 4 it was removed from the pelvic region of the ureters. Operation was thought useless in two cases of old obstruction, because intravenous urography had previously demonstrated a non-functioning kidney.

After spontaneous elimination or surgical removal of the calculi, the physiological function of the kidney involved was verified and found normal in 43 cases (57.3%).

In several previous papers on precise localization of opaque or non-radio-opaque ureteral calculi, we established the need to indicate accurately the site of the ureteral obstruction, because the urological treatment would vary according to the level of the block. We further

\*Read at the Conjoint Meeting of the B.M.A., C.M.A., O.M.A., Toronto, June 1955.

†Member of the Medical Staff, Institut du Radium, Montreal, Que., and Director, Department of Radiology, Hôtel-Dieu de Sorel, Que. Consultant in Radiology, Canadian Army, Quebec Command.

TABLE I.

URETERAL OBSTRUCTION. (HÔTEL-DIEU DE SOREL, SOREL, QUE., 1949-55.)					
A. Calculi					
1. Upper third: (uretero-pelvic junction)					
(a) Right side.....	men.....	9;	women.....	4 = 13	
(b) Left side.....	men.....	6;	women.....	1 = 7	
		15		5	20
2. Middle third: (lumbar region)					
(a) Right side.....	men.....	3;	women.....	2 = 5	
(b) Left side.....	men.....	5;	women.....	0 = 5	
		8		2	10
3. Lower third: (uretero-vesical junction)					
(a) Right side.....	men.....	8;	women.....	8 = 16	
(b) Left side.....	men.....	15;	women.....	13 = 28	
		23		21	44
B. Blood clot					
Blood clot at the left upper third.....					1
Total.....					75

specified that, in the case of a calculus well imbedded in the upper ureter, early surgical removal was absolutely necessary to save renal function.

For almost 15 years, we have made use of intravenous urography for the localization of obstacles to ureteral transit, thus utilizing the power of the kidneys to excrete iodized substances and, by the same method, the renal function. This vast experience has given us a better understanding of the mechanical phases in ureteral transit.

At this point, it is necessary to give some explanation so that the reader may understand the true meaning of the expressions used. The ureter, in normal conditions, is a contractile canal. Its physiological function is to ensure, through rhythmic contractions, the transfer of urine from kidney to bladder. To witness this contractility of the ureter, it is sufficient to observe, through the cystoscope, the arrival of the urine in the bladder by small and rhythmic ejaculations. The surgeon wishing to isolate a ureter from another anatomical formation, takes advantage of this contractile power of the ureter, which, when irritated, quickly contracts in a worm-like manner.

Ureteral contractility is gradually lost after partial but progressive blockage of transit, as encountered in cases of chronic retention with "forced" or dilated ureters. The wall of these ureters becomes atonic and thin, and the urine stagnating in them is then seen by transparency. Moreover, this is one of the factors which endanger the success of ureteral transplantations into the colon. By lack of contraction or by lack of effective physiological function, a generalized dilatation of the collecting system takes place, thus inducing stasis and urinary infection.

In sudden obstruction by calculi, the contractility of the ureter, early in the crisis, battles against the obstacle. These forced contractions are partly responsible for the pain. This contractile power, however, rapidly diminishes and finally becomes ineffective. This process occurs faster when interference with transit is more pronounced. At this time, only a channelling function or *mechanical function* remains, as seen in radiographs demonstrating

a dilated and inert ureter, deprived of contractions and retaining an unchangeable pattern.

To correlate properly renal physiological function and the mechanical one of the ureter, it is necessary to remember that the kidneys are excretory glands and the ureters their excretory canals. It is also necessary to remember the principle of physiology that ligation of an excretory canal will destroy the function of a gland. It is therefore evident that a calculus which causes complete obstruction of a ureter will act as a ligation. The same final result will be obtained if, instead of a calculus exerting an intrinsic block, we have an extrinsic compression of the ureter, as in the case of deep-seated tumours extending to the ureters and causing sufficient compression to impair the mechanical function of transfer of urine to the bladder.

To understand this relationship between the physiological function of the kidneys and the mechanical one of the ureters, one must also visualize the patient's condition at the time of radiological examination. If a calculus is interfering with ureteral transit, it must be remembered that the collecting system is already dilated and full of urine above the block. The urine thus retained in the collecting system is invisible to x-rays. We have arbitrarily called it "*urine No. 1, without dye*".

After intravenous injection of the iodized medium, the excreted urine will contain the dye and become radio-opaque. If no blockage to ureteral transit exists, the iodized substance is eliminated quickly, for it is visible in the col-



lecting systems in less than three minutes after injection. On the contrary, if there is an interference with ureteral transit, visualization of the dye will be delayed because, before the urine containing the iodized substance, which we have called "tinted urine No. 2", can fill the collecting system, it is necessary for the No. 1 urine to be evacuated and replaced by that carrying the opaque medium. In such a case, there is already a diminution in physiological function of the kidney due to alteration in mechanical function of the ureter.

Here we must recall the established principle that there is a relationship between the extent of blockage and the pain suffered by the patient early in renal colic and induced by spastic contractions of the ureter. The increased pressure in the kidney pelvis, however, is the essential cause of the characteristic pain of colic.

Lars Risholm (University of Uppsala) has shown that pressure in the ureter as high as 150-190 mm. Hg did not invariably produce pain in the lower part (excluding the intramural portion). It was exceptional to elicit pain in this way, but closer to the renal pelvis sensibility was greater. In the renal pelvis itself, however, a very moderate rise in pressure (33 mm. Hg, on an average) was adequate to produce a pain which in all respects resembled typical renal colic. Increased pressure in the renal pelvis is the essential cause of the typical pain in renal colic.

This statement is true as long as *renal function is sufficient to keep up this pressure in the kidney pelvis, at a constantly elevated level.*

As previously established, modification of the intensity of pain may signify two distinct and completely opposite effects. Most often, diminution in pain means that the calculus is eliminated or that the degree of blockage to ureteral transit has decreased, thus allowing better function of the ureter and less marked dilatation of the kidney pelvis. In such a case, the physiological function of the kidney has a tendency to re-establish itself at the same level as before the crisis of renal colic or the blockage to ureteral transit. This is always observed when the calculus is small and causing only a partial blockage, which nevertheless permits progression of the urine towards the bladder.

On the other hand, diminution in pain may mean that the physiological function of the kidney is disappearing because of loss of kidney pelvis pressure. Alteration in excretory power of the kidney is an important sign which we ought to recognize early if we are to save the physiological function of the organ.

This particular condition is generally encountered in patients with calculi situated high in the uretero-pelvic junction. In such cases, the calculus is usually too large for its descent into the bladder. Moreover, the ureter at its junction with the kidney pelvis has a funnel shape and the calculus acts as a cork, completely blocking the ureter. After this complete obstruction, the collecting system above the obstacle is highly dilated, and urinary stasis prevents continuation of renal function. The physiological function of the kidney then quickly disappears, following impairment of the mechanical function of the ureter.

Intravenous injection of an opaque medium is performed earlier to find the site of the obstruction, and we then note the iodized substance filling the collecting system above the block. The patient claims a decrease in his pain, which may often disappear completely. The urologist, in such circumstances, may be induced to discharge his patient from hospital, sincerely believing that the calculus has been eliminated or that it is not causing any more trouble. *Instead, this phase is often the beginning of the drama of functional loss of a kidney.*

It can now be stated definitely that it is clinically impossible, when pain has disappeared during early treatment of renal colic, to conclude that the calculus has been passed or physiological function of the kidney re-established. It is no longer permissible to discharge a patient without pain before the functional value of the kidney and the true meaning of the absence of pain have been clearly ascertained by intravenous urography. This is a point well understood by the practitioners of the Sorel area and the reason why we have proceeded to operate in a relatively high number of cases.

When the patient is feeling well, we must be much more careful and take every means at our disposal to verify, as often as necessary, the site of the calculus and the functional state of the kidney. The following case illustrates this point.

CASE 1.—J.M., aged 37, complained on September 14, 1952, of a sharp pain in the left lumbar area, characteristic of renal colic. Hypodermic injections had little or no effect on the pain. The following morning, September 15, the pain was not as severe and it disappeared completely on September 16. On September 17, intravenous urography showed a large calculus imbedded at the left uretero-pelvic junction with stasis of the opaque substance injected four hours previously. The patient had no pain. We already suspected an alteration in physiological function of the kidney (Fig. 1).



Fig. 1



Fig. 2



Fig. 3

Fig. 1.—Case 1. Note the large calculus at the left uretero-pelvic junction with retention of the dye injected four hours previously. Here, the enlargement of the upper collecting system is mild, because physiological function of the kidney has already diminished. Fig. 2.—Case 1. Note the dye still retained above the calculus 24 hours after injection. Ureteral blockage is complete and the patient is suffering no pain because the physiological function of the kidney is failing to keep up the pressure in the kidney pelvis necessary to induce pain. Fig. 3.—Case 1. Once the calculus has been surgically removed, control intravenous urography shows, 10 minutes after injection of the dye, re-establishment of the mechanical function of the ureter and thus the return to normal of physiological function of the kidney.

A plain film was taken the following morning, September 18, and the dye injected 24 hours before was still visible above the calculus (Fig. 2). Two hours later, the patient was operated on and the calculus removed after ureterotomy. Recovery was uneventful.

On November 6, 1952, control intravenous urography showed the mechanical function of the ureter, and thus normal renal physiological function, re-established (Fig. 3).

If, instead of a calculus well imbedded in the ureter, there is a blood clot sufficiently organized to cause a complete block, the same findings will be noted, as demonstrated by the following case.

CASE 2.—P.E.D., 35, was admitted to l'Hôtel-Dieu on December 3, 1952, complaining of acute pain in the

left lumbar area and of hæmaturia. On December 4, intravenous urography visualized a left nephrogram 30 minutes after injection of the dye. There was no calculus visible. Three hours later, the left calyces and kidney pelvis were dilated and full of dye. The lower contours of the opaque dye, toward the upper part of the ureter, were ill-defined. The pain was still rather violent. The absence of a visible calculus, and the presence of hæmaturia and of the ill-defined contours of the dye, indicated possible ureteral obstruction by a blood clot (Fig. 4).

For a few days, a ureteral catheter was left in place in view of a tentative re-establishment of the mechanical function of the ureter.

On December 9, excretion by the kidney had diminished, in comparison with the first examination, as demonstrated by a new intravenous urography. Parallel to this sign, the pain was less acute, thus establishing the diminution of renal function in maintaining the



Fig. 4



Fig. 5

Fig. 4.—Case 2. Note the absence of visible calculus and the ill-defined contours of the opaque medium at the left uretero-pelvic junction, three hours after injection of dye. Hæmaturia was present. The diagnosis of possible ureteral obstruction by blood clot was made. Fig. 5.—Case 2. Control intravenous urography, after surgical removal of an adherent blood clot, demonstrated a normal renal physiological function, 15 minutes after injection of the dye.



degree of dilatation and pressure in the kidney pelvis necessary for inducing pain. The following day, December 10, the patient was operated on. The whole ureter was exposed and there was no perceptible calculus. The ureter was then incised at its upper third, and a long, adherent and obstructive blood clot was removed. The mechanical function of the ureter was then re-established.

Control intravenous urography demonstrated normal left kidney function on February 5, 1953 (Fig. 5).

It has been also established that the level of the ureteral obstruction has a great influence on

first instance change to *hours*, because renal function is then in imminent danger of complete destruction.

In our cases of block at the uretero-pelvic junction when the patients' pain had already ceased, even with filling of the collecting system above the obstruction by dye injected as far ahead as 24 hours, renal function was immediately re-established after early surgical removal of the obstacle.



Fig. 6



Fig. 7

Fig. 6.—Case 3. Film taken three hours after injection of dye. A large calculus is noted near the right transverse process of L3. No excretion of dye is visible in the right upper collecting system, due to loss of kidney function after complete ureteral obstruction of long standing. Fig. 7.—Case 3. Film taken two hours after injection of dye, four months after surgical removal of the calculus. There is absence of visible dye and failure of recuperation of renal function due to impairment of long standing of the mechanical function of the ureter.

future kidney function. If the obstruction is low, it means that the calculus has succeeded in descending to the lower extremity of the ureter, and its spontaneous elimination may be generally expected.

Follow-up of our cases with such a blockage of transit has demonstrated this point perfectly. Moreover, a compensatory increase in calibre of the whole collecting system takes place and renal function is quite well maintained because the calculus, being small, offers only a partial block.

On the contrary, if the obstruction is high, the block is generally more severe and more complete. Here, the *days* of waiting in the

We can never emphasize sufficiently the urgency of surgical treatment in these cases, if we do not want to witness the silent loss of a kidney.

Just as the urologist must refrain from hasty manœuvres in partial and low obstruction, he must also hurry to restore the mechanical function of the ureter in every obstruction that offers a major obstacle to ureteral transit and that is capable, secondarily, of altering kidney function. If these obstacles are not removed with a delay directly in proportion to the extent of blockage of ureteral transit, though always of short duration, kidney function will be irrevocably lost.

During the last war and the immediate post-war period, the opportunity was given us to examine several members of the Armed Forces who had suffered from crises of renal colic, with calculi still visible and imbedded in the ureters. These patients were not complaining of pain and the calculi had become silent. On every one of these patients, intravenous urography failed to visualize the collecting system above the block, on account of the loss of renal function on the side concerned.

In a relatively large number of these cases, the calculus obstructing the ureter was removed surgically and subsequent intravenous urography never demonstrated recuperation of renal function. The following case will prove this point.

CASE 3.—R.H., aged 35, had an intravenous pyelogram on November 22, 1945. A large calculus was situated near the right transverse process of L3 and no secretion was noted on the right even after three hours (Fig. 6). On December 14, 1945, a right pyelolithotomy was carried out. The surgeon found a marked hydronephrosis and the calculus only was removed. Intravenous pyelography on January 8, 1946, failed to show any secretion on this side even two hours after injection of dye. The function of the right kidney was lost (Fig. 7).

In the case of a pregnant woman, it is common to note some modification of the collecting systems and of kidney function, resulting from extrinsic compression of the ureters. Blockage of the mechanical function of the ureters is only partial and function is quickly restored to normal a few days after delivery, when ureteral function has again become normal.

Blockage of ureteral transit may also be caused by scarring, adhesions, aberrant vessels or any other congenital anomalies.

Unless the obstacle is removed early, this partial and constant blockage of transit will gradually favour a dilatation of the collecting system and, according to its intensity, an onset of vague malaise which will remain undefined for a long time, but finally will end in slow but permanent destruction of renal physiological function.

In slow and progressive obstruction coincident with the development of certain abdominal conditions—deep-seated tumours, cancers of the genitals invading the parametrium, cancer of the bladder or prostate—the patients, in the early phase of blockage of ureteral transit, complain only of vague pain. Intravenous urography will then reveal a delay in visualization of the opaque medium in one or both collecting sys-

tems, if there is unilateral or bilateral invasion of the ureters. It should be noted that blockage, at the beginning, usually takes place on one side only. It is much later, following the development of the tumour, that the other side is involved. In unilateral block, the kidney eventually ceases functioning without affecting the general condition of the patient. On the contrary, if blockage is bilateral, there is a rapid rise in blood urea which becomes irreducible. The patient dies from uræmia by destruction of the physiological function of the kidneys as a result of the more and more extensive and progressive interference with mechanical function of the ureters. In these cases, only transplantation of the ureters may restore the renal function, lower the blood urea and prolong the life of the patient.

This fact, currently recognized, is sufficient alone to establish the importance of maintaining the mechanical function of the ureters to safeguard the physiological function of the kidneys.

#### SUMMARY AND CONCLUSIONS

1. The kidney is an excretory gland, the function of which may be hindered or destroyed by a partial or complete block of the ureter—its excretory canal.

2. Mechanical function of the ureter must be maintained if we are to safeguard the physiological function of the kidney.

3. Analysis of the cases of ureteral obstruction encountered at l'Hôtel-Dieu de Sorel established that more than 40% of calculi cause a blockage of ureteral transit, capable of destroying renal function.

4. It has been demonstrated that the symptom "pain" requires correct interpretation. The feeling of well-being or the absence of malaise may, in a certain number of cases, indicate the silent loss of a kidney.

5. When obstruction is recent, surgical removal of the obstacle, in re-establishing the mechanical function of the ureter, usually restores the physiological function of the kidney.

6. Intravenous urography is the best means of evaluation and supervision of renal physiological function.

7. In 57.3% of our cases renal function was radiologically controlled after the obstacle to ureteral transit had been spontaneously eliminated or surgically removed.



8. It is recommended that a functional test be made in all cases of ureteral calculi, eliminated or removed, particularly when pain is absent.

9. There is no hope for recuperation of renal function in ureteral obstruction of long standing, when intravenous urography has failed to visualize the collecting system above the obstacle. The kidney is functionally destroyed, and operation is useless.

10. In progressive or complete extrinsic compression of the ureter, findings are identical. If compression cannot be relieved early enough, loss of physiological function of the kidney is irrevocable.

#### REFERENCES

1. GILL, G. AND LIGHT, W.: *Canad. M. A. J.*, 56: 513, 1947.
2. RISHOLM, L.: *Acta chir. scandinav. Suppl.*, 184: 1, 1954.

#### RÉSUMÉ

L'auteur considère le rein comme une glande d'excrétion dont la fonction peut être gênée ou détruite par une occlusion totale ou partielle de son canal excréteur, l'uretère.

Il faut conserver la fonction mécanique de l'uretère si l'on veut sauvegarder la fonction physiologique du rein.

Après une analyse des obstructions urétérales rencontrées à l'Hôtel-Dieu de Sorel, il fut établi que plus de 40% des calculs causent un obstacle au transit urétéral qui peut léser la fonction du rein.

Il fut démontré qu'il faut interpréter correctement le symptôme de la douleur. La sensation de bien-être ou l'absence de malaise peut, dans certains cas, indiquer la perte sourde d'un rein.

Quand l'obstruction est récente, l'élimination des obstacles, en rétablissant la fonction mécanique de l'uretère, restitue généralement au rein sa fonction physiologique.

L'urographie endoveineuse constitue le meilleur moyen d'évaluation et de contrôle de la fonction physiologique du rein.

Un examen radiologique de la fonction rénale fut pratiqué chez 57.3% de nos malades, après que les causes d'obstruction dans le canal de l'uretère eurent été supprimées spontanément ou par intervention chirurgicale.

On recommande un examen fonctionnel dans tous les cas de calculs de l'uretère, éliminés ou enlevés, surtout quand le symptôme de la douleur est absent.

On ne peut espérer le rétablissement de la fonction rénale dans les cas d'obstructions de longue date, lorsque l'urographie endoveineuse ne laisse pas voir l'appareil excréteur en amont de l'obstacle. La fonction du rein est détruite et l'opération chirurgicale devient inutile.

Les mêmes observations furent faites dans les cas de compression extrinsèque complète ou progressive de l'uretère. Si les causes de la compression ne peuvent être écartées assez tôt, la perte de la fonction physiologique du rein est irrévocable. M.R.D.

## ENDOMETRIOSIS OF THE BOWEL\*

THOMAS G. RILEY, M.D., *Toronto*

ENDOMETRIOMA was first described by von Rokitsky in 1860.<sup>1</sup> The first case of bowel obstruction due to this cause was reported by Meyer in 1909.<sup>2</sup> Since that time frequent reports on the subject have appeared in the literature. It is true that bowel obstruction from this disease is relatively uncommon, but the fact that endometriosis of the bowel so often presents difficulties in diagnosis and treatment makes it of practical importance to both surgeons and gynecologists.

The incidence of involvement of the bowel in all cases of endometriosis is variably estimated between 5%<sup>3</sup> and 40%.<sup>4</sup> Most authors' estimates are closer to 25%. No accurate figures of the incidence could be obtained in this centre, but roughly it is in the region of 3%. The authors

who report the higher incidence include the slightest involvement of the serosa, the so-called "powder marks". These are not included in the group of patients being presented.

Meigs<sup>5</sup> states that he has found a greater incidence of endometriosis in women of the higher socio-economic groups, and believes that this is due to later marriages and fewer pregnancies. It was of interest that 16 of the 19 cases to be presented were in private patients.

The lesion may be present in the form of small implants on the serosa of the bowel, usually in the rectum and sigmoid, but they may also be found in the cæcum, colon, appendix and small bowel. Marked puckering and scarring of the serosa is a frequent concomitant.

The disease also occurs as an endometrioma. This is a hard, irregular mass in the wall of the bowel, usually indistinguishable from carcinoma; like the latter disease it may cause bowel obstruction and rectal bleeding.

The records of the Toronto General Hospital and the Wellesley Division yielded 19 cases of this condition, and these will be discussed. All

\*Presented at the Surgical Staff Meeting, Toronto General Hospital, May 8, 1955.

TABLE I.

AGE, PARITY AND SITE IN 19 CASES OF ENDOMETRIOSIS INVOLVING BOWEL					
Age	No.	Parity in 16 married women	No.	Site	No.
30 - 35.....	5	Para 1.....	4	Large bowel.....	15
36 - 40.....	2	Para 2 or more.....	8	Rectum and	
41 - 45.....	7	Nullipara.....	2	recto-sigmoid.....	11
46 - 50.....	3	Parity unknown.....	2	Cæcum.....	4
51 - 55.....	1			Small bowel.....	6
56 - 60.....	1				

of these patients underwent operation and the diagnosis was proven by pathological examination of the removed specimens. Of the 19 cases, the disease was present in the form of endometriomata in 12, while in seven it was manifested by superficial implants.

#### AGE

It is seen from Table I that 14 of the 19 women were over 35 years of age. Endometriosis is a disease found during the reproductive period, especially the latter half, and is quiescent during pregnancy. Exceptions to this are not uncommon. In one woman (A.B.), 56 years of age, the sigmoid colon and uterus became involved by a mass which was endometriotic in origin, one and a half years after the cessation of her menstrual periods. Pelvic examination six months before admission was negative. Another patient (E.M.), 35 years of age, developed small bowel obstruction at seven months of her first pregnancy. A biopsy specimen of an adhesion between the ileum and uterus was reported as "endometriosis with decidual change". It is probable in this case, however, that the adhesion was present before the pregnancy.

The pathogenesis of endometriosis is still unsettled. One interesting case was encountered which showed rather dramatically that the disease may advance in the absence of the uterus. This woman (R.L.), had a subtotal hysterectomy performed for fibroids two years before admission, at which time small areas of endometriosis were present on the pelvic peritoneum and in one ovary which was removed. The recto-sigmoid later became involved by endometriosis causing tenesmus, rectal pain and the passage of blood and mucus, which occurred monthly at exactly the same interval as her previous menstrual periods.

#### PARITY

It has been generally reported that women suffering from endometriosis tend to have a

decreased ability to conceive. Absolute sterility was reported as occurring in 34% by Jenkinson and Brown<sup>4</sup> and in 41% by Keene and Kimbrough.<sup>3</sup> The findings in this series are recorded in Table I. It is seen that 12 of the 16 married women bore at least one child and 8 of the 12 more than one. If this is corrected for the women of unknown parity, then sterility was present in only 2 of 14 patients, an incidence of 15%.

#### SITE OF INVOLVEMENT

Endometriosis may involve any portion of the bowel. Table I lists the areas affected in these 19 cases. The rectum and recto-sigmoid were involved in 11 instances, the cæcum in four and the small bowel in six. The condition was present in both large and small bowel in two cases.

#### DIAGNOSIS

A history and physical examination suggestive of endometriosis is of great value where present; however, this was obtained in only 6 of these 19 patients. Most authors find that endometriosis of the bowel is seldom diagnosed preoperatively.

The condition may manifest itself clinically by causing narrowing of the intestinal lumen. This results from the fibrous tissue reaction to the foreign tissue and blood in the bowel wall, and from hæmorrhage and œdema at the time of menstruation. Either large or small bowel obstruction may result. In these 19 cases there were 9 cases of clinical bowel obstruction proven at operation; 5 of these occurred in the large bowel and 4 in the small bowel. Of the 9 cases, however, only one (V.G.) occurred at the time of menstruation. The incidence of obstruction reported by others varies considerably. Cattell<sup>6</sup> reported 71%, Jenkinson and Brown<sup>4</sup> 45% and Thierstein and Allen<sup>7</sup> only 6%.

Endometriosis of the bowel may also cause rectal bleeding, often coincident with the men-



strual flow. In this series, two patients (B.D. and R.L.) had bleeding by bowel and in one (R.L.) it occurred at menstruation. Mayo and Miller<sup>8</sup> reported rectal bleeding in 11 of 38 cases and Cattell<sup>6</sup> in 2 of 17 cases.

The diagnosis of endometriosis of the bowel would be much easier if at operation the more characteristic and well-known manifestations of the disease were present, such as chocolate cysts of the ovaries and peritoneal implants. However, the bowel was the only organ involved in 13 of the 19 cases and no other evidence of endometriosis was visible. Perhaps this is the reason for the higher fertility rate in these women than that usually reported. Mayo and Miller<sup>8</sup> reported 16 cases in 38 where the bowel alone was involved. Others regard the involvement of the bowel alone as a rarity, and two reports of single cases have appeared in the literature.<sup>9, 10</sup>

A barium enema is occasionally helpful in the diagnosis where bowel symptoms are present. A long filling defect with intact mucosa may be revealed which is non-distinctive in nature, in contrast to diverticulitis and carcinoma. In five cases a constricting lesion was disclosed;

two of these were diagnosed as carcinoma and one was reported as showing pressure from outside the bowel. In the remaining two of the five cases the exact radiological reports are not available.

Sigmoidoscopy was performed on six patients. In one woman (B.D.) this procedure revealed the rare occurrence of bluish nodules on the mucosa, and in another patient the instrument could not be passed because of a narrowing of the bowel lumen. This diagnostic aid was more informative in the series of Mayo and Miller<sup>8</sup> and of McGuff *et al.*,<sup>11</sup> who detected abnormalities in the bowel in 15 of 18 and 9 of 12 cases respectively.

#### TREATMENT

The treatment of endometriosis of the bowel should follow the principles of treatment of endometriosis in general. In younger women with extensive involvement of the bowel, a conservative resection should be done. If only small areas are present on the serosa of the bowel, these may be simply excised or ignored. If the reproductive tract is also involved, surgery should be confined to those organs damaged

TABLE II.

TREATMENT AND FOLLOW-UP OF 19 CASES OF ENDOMETRIOSIS INVOLVING BOWEL			
Patient	Age at operation	Year of operation	Subsequent course
<b>A. Conservative operation</b>			
A.B.	56	1924	Freeing of adhesions of bowel in pelvis. No recurrence. Patient died 5 years later.
V.R.	33	1953	Ovaries, small bowel, pelvic peritoneum involved. Ovary and appendix removed. No bowel dysfunction at present.
<b>B. Bowel resection without castration</b>			
K.S.	48	1953	Alive and well, no recurrence
V.G.	43	1953	" " "
S.T.	31	1950	" " "
M.E.	43	1953	" " "
E.M.	35	1952	" " "
C.R.	38	1948	" " "
B.D.	42	1952	Repeated episodes of tarry stools. G.I. series negative.
I.O.	45	1934	No recurrence, developed a lymphoma
<b>C. Bowel resection with castration</b>			
<i>Surgical</i>			
M.W.	52	1953	Alive and well, no recurrence
E.S.	36	1952	" " "
C.B.	46	1942	" " "
E.B.	42	1946	" " "
<i>Radiation</i>			
P.M.	31	1946	Alive and well 1 year later.
<b>D. Castration only</b>			
J.B.	48	1952	Lesion in sigmoid disappeared in 7 months (barium enema); developed adenocarcinoma of sigmoid 2 years later.
R.L.	41	1950	Lesion in sigmoid disappeared in 1 year.
M.P.	34	1936	Lesion causing incomplete obstruction of sigmoid was absent 7 years later.
M.K.	45	1947	Lesion in terminal ileum and caecum at time of first operation caused bowel obstruction 1 year later.

beyond hope of even partial function, so that the patient can theoretically become pregnant. This is carried out with the realization that further involvement may occur and necessitate further surgery. This plan was adopted in groups A and B of Table II, a total of 10 patients with so far only one case (B.D.) of recurrent endometriosis involving bowel, although in most cases the follow-up is short.

When endometriosis involves the bowel extensively in older people or in women who desire no further children, more radical surgery is indicated. Removal of the ovaries and uterus together with a bowel resection results in a permanent cure. Castration by radiation post-operatively is an alternative. This treatment was carried out in five cases in group C with no evidence of complication or further disease.

It is well established that extensive lesions of endometriosis, including those of bowel, will disappear after surgical or radiological castration. Treatment by radiation, however, while avoiding the necessity for surgery, is not advisable because of the uncertainty of permanent castration and the danger of overlooking malignant disease. Surgical removal of the ovaries and uterus was performed in four cases in group D in the presence of a constricting lesion of the bowel. In three of these the lesion in the bowel disappeared after varying intervals. In one case a lesion in the terminal ileum and caecum, recognized at the first operation, caused small bowel obstruction one year later which necessitated bowel resection. Colcock and Lamphier<sup>12</sup> reported two cases of bowel obstruction due to endometriosis in women over 65. Thus it is seen that the lesions will not always disappear after the ovarian stimulus has ceased. In these cases, the areas of endometriosis survive, their growth probably stimulated by hormones of extra-ovarian origin.

#### SUMMARY AND CONCLUSIONS

Nineteen cases of extensive involvement of the bowel by endometriosis are reported, 12 by endometriomata and seven by superficial lesions. Fourteen of the 19 patients were over 35 years of age. Only 2 of 14 married patients were sterile. The large bowel was involved in 15 instances, and the small bowel in 7. Clinical bowel obstruction occurred in 9 cases, an incidence of almost 50%. In 13 of the 19 cases

the bowel was the only organ involved by endometriosis. In the treatment of endometriosis of the bowel every attempt should be made to preserve the childbearing function in the younger woman, even at the risk of a later operation for the same disease. When this is no longer a consideration, a permanent cure should be ensured by both resection of the involved bowel and castration by removal of the uterus, tubes and ovaries.

#### REFERENCES

1. VON ROKITANSKY, C.: *Ztschr. d. k.-k. Gesellsch. d. Aerzte zu Wien*, 16: 577, 1860.
2. MEYER, R.: *Arch. f. Path. Anat., Virchow*, 195: 487, 1909.
3. KEENE, F. E. AND KIMBROUGH, R. A.: *J. A. M. A.*, 95: 1164, 1930.
4. JENKINSON, E. L. AND BROWN, W. H.: *Ibid.*, 122: 349, 1943.
5. MEIGS, J. V.: *Ann. Surg.*, 127: 795, 1948.
6. CATTELL, R. B.: *New England J. Med.*, 217: 9, 1937.
7. THIERSTEIN, S. T. AND ALLEN, E.: *Am. J. Obst. & Gynec.*, 51: 635, 1946.
8. MAYO, C. W. AND MILLER, J. M.: *Surg. Gynec. & Obst.*, 70: 136, 1940.
9. WOOD, O. T., DEIBERT, I. AND KAIN, T.: *J. A. M. A.*, 130: 341, 1946.
10. STEADMAN, H. E.: *Mod. Med. Canada*, 10: 93, 1955.
11. MCGUFF, P. et al.: *Surg. Gynec. & Obst.*, 86: 273, 1948.
12. COLCOCK, B. P. AND LAMPHIER, T. A.: *Surgery*, 28: 997, 1950.

#### JOINT AND BONE DISEASES DUE TO MYCOTIC INFECTION

E. C. Toone and J. Kelly (*Am. J. M. Sc.*, 231: 263, 1956) found eight cases of bone and joint disease in 25 cases of pathogenic mycotic infection observed over a period of five years. Five cases were due to *Blastomyces dermatitidis*, two to *Cryptococcus neoformans*, and one to *Coccidioides immitis*. The number and character of the mycotic infections were not considered unusual for this area.

Bone lesions as a rule are osteolytic in nature, usually multiple, and involve cancellous rather than tubular bones. Joint involvement occurs by extension from the adjacent infected bone. In cases responding to treatment, roentgenographic evidence of bone damage may exist long after the systemic features and evidence of involvement of the other organs have disappeared.

The aromatic diamidines, particularly 2-hydroxystilbamidine, have been found to be effective in treating blastomycosis, actinomycosis and cryptococcosis (except in the central nervous system). Various sulfonamides and antibiotics have been helpful in some cases of actinomycosis and nocardiosis. Iodides in various forms are still being used in the treatment of a number of these diseases, but their use is limited. To date, no treatment of value is available for coccidioidomycosis, histoplasmosis or cryptococcosis of the nervous system.

Diagnosis can be established only by recovering the organism from the joint, bone, abscess cavity, sinus tract, skin, sputum, urine or spinal fluid.



## REHABILITATION FOLLOWING POLIOMYELITIS:

### I. THE CONFLUENCE OF PSYCHIC AND PHYSICAL SEQUELÆ

MARVIN WELLMAN, M.D.,\* *Esquimalt, B.C.*,  
Assisted by  
GORDON H. GRANT, B.Sc., M.D., F.R.C.S.,†  
*Victoria, B.C.*

THE PARALYSES and deformities which may follow acute poliomyelitis are so dramatic that they tend to obscure other handicaps which are brought into the foreground when the patient attempts to re-establish himself as a wage-earning member of the community. Seidenfeld has stated that over 98% of the professional literature fails to indicate a recognition of any possible effect of poliomyelitis on the psyche.<sup>1</sup> The generally lowered capacity for effort<sup>2,3</sup> and the emotional difficulties which develop during rehabilitation<sup>4</sup> are dangerous obstructions to a productive and satisfying life.

Variations in the physical and mental health which are not readily explicable are commonly observed during the rehabilitation of patients who have had acute poliomyelitis. Lowman and Seidenfeld, basing their report on an investigation of 437 patients, state that the employed patient is more anxious about his future security than the unemployed patient.<sup>5</sup> The present study is concerned with the general increase in symptoms which occurred when a patient, who was successfully re-establishing himself in spite of residual paralyses, returned to his regular occupation.<sup>6</sup>

This patient had demonstrated that he could withstand both the stresses of active service during the Second World War and unusual tensions in time of peace. His emotional stability may be considered average if not superior on the basis of his response to these practical tests. The lack of specificity as to dates and some other elements of the case history is advisable because of the personal nature of the problems discussed.

#### CASE HISTORY

*Family history.*—The father, an industrial first-aid man, died during his forties, as the result of a malignancy. The patient was beginning puberty at the time. The mother did not re-marry. She is in good health. The patient is the youngest of several siblings. The others are

healthy. They are living with their respective spouses and their marriages have been fertile.

*Personal history.*—The patient was born in the third decade of this century. He had whooping cough and German measles in childhood. After attending five different schools he completed the second year of technical school at 16 years of age. He obtained work as a mill-hand. It was heavy work for him but he took pride in "holding up his end" with older and larger men. His war service included sea duty for 18 months and D-day operations with the L.C.I.'s. At the end of the war he returned to the one job he knew, working in the mills. He did not obtain as much satisfaction from the physical activity which the job demanded as he did when he was younger. In the course of a few years he decided that there was little hope of advancement in the mills; he had liked the armed services, and returned to them.

After demobilization he married. There is one child.

*Personality.*—The patient was a light-hearted man with active social interests. Some musical ability and a pleasant voice were assets valued by his friends. He liked his work. His usual approach to tension-producing situations was based largely on realistic thinking and problem-solving techniques. When defeated, his customary response was "self-effacement and harder work".<sup>7</sup> He was aware of a strong need to be accepted by his associates. There is considerable evidence in his adult personality of a warm family environment during his early years.

*Present illness.*—In July 1953, the patient developed a pain in the right chest. It was severe on general movement of the body and on breathing deeply. There was an occasional tendency to cough, some general malaise and a low fever. The clinical picture subsided, but four days after the onset the temperature rose, accompanied by general weakness and headache. On the fifth day after the onset he began to vomit. On the sixth day the temperature was 102.8° F. and the headache was more severe. The patient felt weak and nauseated. The right thumb was numb and painful. The first examination of the spinal fluid revealed, chlorides 742 mg. %, total protein 75 mg. % and a cell count of 7 per c.mm. The patient was able to move the right arm and hand but the co-ordination was poor and a severe early paralysis was noted in the thenar muscles. The right triceps was weak. By the eleventh day all muscle groups of both arms were involved. Both lower limbs were weak, with the loss of strength most evident in the right quadriceps and the dorsi-flexors of the left ankle. All involved muscle groups were painful. It was necessary to spoon-feed the patient for the next six days owing to the loss of strength in both arms. By that time improvement in the left arm and hand enabled him to feed himself.

During the first week of illness the patient had experienced considerable anxiety about the future. A hitherto lively interest in the environment progressively became attached to an aching head, a painful thumb and a body which was a constant source of sensations indicating weakness and impairment. By the end of the first week he was not able to direct his attention to anything outside of his own person for more than a few moments at a time. By the end of the second week the patient was toxic, all four limbs were incapacitated and muscular pain was constant. Interest, attention and feelings were focused on himself. By this time he had been reduced to the helplessness of infancy, entirely dependent upon those looking after him. This

\*Surgeon Commander, R.C.N., Naval Hospital, H.M.C.S. "Naden", Esquimalt, B.C.  
†625 Fort Street, Victoria, B.C.



physical regression was accompanied by an increase in anxiety which was so great that it, together with a toxic clouding of consciousness, gave this period and the weeks which followed a nightmarish quality. Transient increase in pain caused by the necessary movements involved in nursing care or any incident on the ward which was not fully understood was interpreted as threatening and increased anxiety.

Later, as the subsiding pain and weakness made less imperious demands, the psychic energy was gradually redistributed, as shown by development of a justifiable concern about the future financial security of his family and an intense interest in the hospital staff and the patients about him. The redistribution was slow, as the somatic structures kept insisting on their need for interest and attention by such sensory phenomena as pain, weakness and difficulty in muscular control. All movement, including the many things which the dominant hand does without requiring much conscious thought, demanded attentive effort.

Patients, after complete and prompt recovery from a disease or injury with no sequelæ, are interested in the activities which they previously enjoyed and gain satisfaction from them. This patient was not able to follow his previous way of life, and even thoughts of it brought with them a clearer awareness of its apparent impossibility. He was not only defeated in attempts to re-invest psychic energy outside of himself, but in those defeats repeatedly underwent experiences emphasizing his own organic inferiority. The stressing of physical inadequacy did nothing to dispel the anxiety which had been released during the acute phase of the illness.

The shifting of conscious and unconscious psychic energy from the external world to the body of the patient is a concomitant of any somatic injury whether that injury is the assault of the poliomyelitis virus or the result of sitting on a tack. The somatic location of the investment and the amount of the psychic energy used in this way vary with the site of the organic involvement and the severity of the symptoms which arise in that particular location. Many have had the experience of getting a pebble in their shoe and continuing to walk. The difficulty they had in paying attention to anything except the local injury can frequently be remembered for a long time.

Late in 1953 the patient was discharged from hospital to convalescent leave. He felt weak and suffered from considerable pain in the right hand and arm. A series of surgical procedures which have since restored the function and improved the appearance of the right hand were started a week later. A second operation was undertaken in March and a third in June 1954, when a right brachial block anæsthetic was used. Severe pain in the right chest developed after this operation and a diagnosis of right pneumothorax was verified by the radiologist. On the tenth postoperative day the patient appeared depressed and anxious. He wept and said that people were against him.

The mental health of this young man was still unstable as a result of the changed disposition of psychic energy which followed the trauma and the threat of the disease. The recovery from the regression of psychic energy which occurred during the acute phase had been gradual. The patient was experiencing some resentment against persons who were without physical handicap.<sup>8,9</sup> This was a source of conflict and guilt. The right pneumothorax caused the patient an unexpected defeat by retarding his recovery. It demanded another regression of psychic energy to his own body because of the pain and other sensory phenomena. He had been looking forward anxiously to gaining further control of his hand and arm, "a psychological achievement of inestimable importance".<sup>10</sup> Ten days after the operation, when it was obvious that the improvement in control would not approach his expectations, the patient experienced an overpowering sense of defeat. By the next day he was feeling better and was discharged from the hospital.

At this time the patient was not subject to any tremors, twitches, cramps or sharp pains, but he found it an effort to stand erect and had a dull ache in the right hand and forearm. He would be unaware of any ache as long as he kept his attention directed away from his somatic structures.

While he was on leave, after discharge from hospital, the muscular aches became more intense. The patient believed that activity would encourage his recovery, so he not only took part in social and family affairs but also undertook such things as gardening. Muscular pains in the right hand and arm became more severe and the other limbs began to ache following exertion.

The fasciculi of the temporales arising from below the anterior third of the superior temporal line began spontaneous and recurrent contractions. These twitches occurred frequently in the right temporalis and rarely in the left. During his leave, he also noted that when he "did a little too much" he would have difficulty in getting to sleep because of cramps in the gastrocnemii and hamstrings.

The report of a physical examination in August 1954, after the patient had returned to work, contains the following comments: "patient noted a blacking-out quite easily on deep breathing—no dyspnoea but low work tolerance", and "did not seem depressed on this date". Weakness and deformity of the right hand and weakness of the right triceps were recorded. An improvement in left foot drop was noted. Right thenar paralysis was complete.

At this time his right hand and arm ached painfully by the end of every day. A regular, fast tremor would sometimes develop after very limited effort or in response to minor social tensions. The muscle twitches and cramps were more troublesome. During his leave he had observed that the muscular symptoms varied directly with the amount of his physical activity but after his return to work he became unwilling to acknowledge this. He was ashamed to admit, even to himself, that the energy he was expending marked the limit of his physical prowess. He kept telling himself that he would have to keep active or he would never get his strength back.

He was more concerned about the future than he had been previously. He worried about his retention in the service whenever he allowed himself to consider it. The patient believed that he would gain reasonable advancement if he were retained in the service but that he would be unlikely to earn an adequate livelihood for his family if he were discharged. He dreaded the prospect of attempting, as a partially disabled man, to work at some job to which he was not accustomed. As a result of these considerations he was daily doing his work to the best of his ability. He was not able to take the same part in the life of his family that he had taken before his illness.

The wife of the patient had heard and read about poliomyelitis. She believed that she should encourage her husband to be active so that he could forget all about himself. Her good intentions prevented her from satisfying his need for

consolation which would have ameliorated the psychic trauma attendant on the physical sequelae of the poliomyelitis.<sup>11</sup> They also prevented him from talking over the day-to-day problems and clarifying them.<sup>12</sup>

Largely from a sense of duty the patient followed the pattern of social endeavour suggested by his wife. He was puzzled by his own lack of interest as well as by certain new interests which were developing. The changed pattern of investment of psychic energy was due in part to the lesser amount of energy available as a result of the narcissistic regression which it had undergone, and in part due to new attachments it was making as it again spread away from the soma.

Attempts to invest psychic energy outside of the body, in activities which had interested him before his illness, had been defeated by his physical inadequacies. Before his illness his body had functioned with no special attention, but now it demanded interest and thought. In addition, the residual effects of the disease served as a constant threat and in this way the anxiety which had been released by the infantile helplessness was able to retain large amounts of energy. The spread of interest, attention and feeling to the environment was further discouraged by the powerful sense of humiliation associated with the deformed and weak right hand.<sup>13</sup> Among the changes in the attachments of psychic energy was a greater interest in sick persons than had been present before the illness and a spontaneous interest in anything concerning acute anterior poliomyelitis. As the patient's occupation is caring for sick Service personnel, this will probably enable him to make a greater contribution to society and to do it with more satisfaction than would have been likely had he not had poliomyelitis.

#### SYMPTOM DEVELOPMENT AFTER RETURN TO WORK

Following the patient's return to work his chief symptoms were depression, anxiety, muscle ache, tremors, twitches and cramps. The symptoms occurred more frequently and with greater severity than they had when he was on leave. The relative intensities of the psychological and the muscular proportions of the symptom picture varied. At one time the "mental" aspects would be felt as the more burdensome by the patient, and at other times the muscular.



When the patient was aware of muscular symptoms, he was always aware of associated phenomena in his mental life.<sup>14</sup> This might be a vague anxiety or a more complex picture of worries about whether the symptoms would get better or worse and his choice of occupation if he had to leave the service. On occasion, following short periods of painful fantasies related to his physical handicap, he experienced waves of relatively mild depression and anxiety without any associated muscular symptoms. When the depressive feelings and anxieties were severe, there were always associated muscular symptoms.

The patient developed muscular symptoms in response to physical activity of short duration which was now difficult but would previously have been done casually. As an example, pushing open an unexpectedly heavy door with the right hand would result in a sharp ache in the hand and arm for the next half hour or more, accompanied by anxiety and speculation as to whether he would ever be able to do ordinary things without pain. At the same time his mood level would be lowered. A vigorous effort, such as carrying a man in a Neil-Robertson stretcher for a few minutes, made the patient feel that he was "using all his strength". The muscles of both legs and arms began to ache promptly and he developed a cramp in his abdominal muscles. Half an hour later the temporales began to twitch and several hours later he developed severe cramps in the lower limbs. The patient felt that he should be able to carry out such activity without distress, and again there was the fear for the future associated with the development of the symptoms.

When the patient was persistently active to a degree which involved a greater expenditure of physical energy than was readily available to him, he developed a number of symptoms, the most outstanding of which were depression and anxiety. This occurred when the work was felt to be heavy by men in robust health. He would be aware, first, of feeling that he was working under pressure, and then the right hand and arm would become more painful. He would experience what he called "muscular tension", the subjective sensations resulting from an involuntary tensing of skeletal muscle. After another hour he would have difficulty giving his undivided attention to the problems at hand and consequently he would have more difficulty than usual

in managing them. At the same time, he would begin to see anxiety-laden situations where before he had seen nothing worthy of concern. Everything which occurred or was considered in the course of his work or his home life presented its more unhappy aspects. He would ruminate over his personal misfortunes and the outlook for his family.

The second day the muscular ache was sufficiently severe to be seldom below the threshold of consciousness. The twitching of the temporales and the ache in the left ankle was annoying. When he went to bed at night, he would have trouble getting to sleep because of cramps in his lower limbs.

Lighter work for a day or two or the opportunity of getting to sleep early for a couple of nights would interrupt this sequence of events; otherwise it continued, with the symptoms becoming aggravated until they reached an intensity where they automatically levelled off. At this point the need for rest was so great that it overcame the conventions of social and family life. The patient would go to sleep shortly after arriving home. He would sleep soundly till morning if his legs were straight. He had learned to sleep with his lower limbs in full extension because even a few degrees of flexion sustained for a short time resulted in cramps. Once he started going to sleep regardless of his own intentions, the intensity of the depression, anxiety and muscular symptoms remained fairly constant from day to day until he could get still more rest.

Several times daily, during the periods when the symptoms were more intense, the patient would become what he called "irritated all over". He had difficulty in describing this condition. Part of it was an increased sensitivity of the skin. The touch and the pressure of clothing became unpleasant and uncomfortable and, occasionally, almost unbearable. At the same time there were vague, shifting and distressing sensations just below the skin or in the skin.

At this symptom level, the patient would begin to experience occasional periods of confusion lasting an estimated two or three minutes. These might be coincident with the "irritated all over" feelings. He would have difficulty following what was going on about him. On occasion, he would become momentarily completely confused and "dizzy". The "dizziness" was not a vertigo but an unsteadiness of the



lower limbs associated with difficulty in convergence and focusing of the eyes. His head would throb and feel full.

During these experiences, the patient tended to speak sharply to anyone who crossed him in spite of his conscious attempt not to behave in such a fashion. If his impulsive words were directed towards his wife or child he would immediately experience painful feelings of guilt. Unjustifiably angry words were more commonly expressed towards figures emotionally close to him.

The muscular symptoms were felt by the patient to be an important part of the over-all picture but he dreaded the depression, the "irritated all over" sensations and the confusions with unsteadiness, more than he did the aches or the cramps.

The entire reaction would disappear between the second and third days of rest in bed. It would subside to a point where the patient did not feel it burdensome if he had light work and was able to retire early for two nights.

Depression and anxiety of equal severity to that just described but with comparatively light muscular symptoms, occurred on a few occasions within the first five months of discharge from hospital in June 1954. Each of these took place during a period of decreased activity which was either the result of deliberately avoiding the expenditure of effort or during those times when the pressure of work was less, and each was preceded by the patient's having been subjected to minor situations to which he could not adjust with satisfaction and over which he had no control. The anxiety and depression accompanied depressive fantasies which were initiated by a series of incidents focusing his attention on the affected hand or on the more unfortunate aspects of his general situation.

An example of such a series of incidents is an attempt to write until a tremor developed which made further effort useless. While he was still smarting under this defeat, he noticed an acquaintance staring curiously at the trembling and stiff right hand.<sup>4</sup> A few minutes later there was a casual discussion of baseball, which he had not been able to play since his illness. The traumatic effect of any one of these was negligible, but together the series deflected the interest of the patient from the external world and initiated chains of fantasy. Such a series is more apt to occur at work than at home. Even when there is no attempt in the home to avoid delicate issues, the patient's familiarity with the probable topics and their presentation gives him some protection against traumatic effects.

The depressive fantasies would begin with thinking about his right hand. The patient would then think of the possibilities of his, and especially his family's, becoming dependent on charity. After ruminating over these topics for a time, he would have trouble turning his attention to more cheerful ones. The worst aspects of his occupational and personal life and the most dismal forebodings would claim his attention successfully. He referred to these fantasies as "feeling sorry" for himself. He learned that the longer they continued, the more depressed he became and the more difficult it was for him to think about anything else. A minimum of activity at his work was carried out with effort. Tremors, twitches and cramps were more frequent and muscle aches more severe, but the patient did not consider that physical symptoms during these periods were important.

He was able to appraise the situation intellectually, and he would decide that, if he had to be sick, he could not hope for better circumstances than those in which he found himself. His income had not been interrupted and there would be no interference with his chosen career. He had had hospital, medical and surgical treatment as indicated with no cost to himself and he would continue to have them as long as they were needed. He felt that his general health was improving and that the improvement would continue. As a result of such considerations he deliberately threw himself into his work each time that he became depressed under these circumstances. Each time he found that forcibly directing his attention to the outside world resulted in the remission of the depression, greater comfort and satisfying increase in effectiveness.<sup>15</sup>

#### DISCUSSION

The most important factor contributing to exacerbations of symptoms occurring during the periods of rehabilitation was the expenditure of an amount of physical energy which would not have been great for this man before his illness but which was more than he could tolerate during this period of convalescence without the development of symptoms. Part of the depression may have been the psychological result of the physical exertion, since one experiences lowering of mood level when readily available energy is expressed as work. Much of it was because of the development of physical symptoms; even the

sensation of fatigue was a symbol of defeat stressing to the patient his personal inadequacy. The patient used the term "fear" in referring to the anxiety which accompanied the depressed moods. The awareness of inadequacy kept the anxiety which had been liberated by his temporary helplessness heavily endowed with energy. The anxiety of the poliomyelitis patient during rehabilitation may be in part a neurotic anxiety and in part a moral anxiety, but it is basically and principally an objective anxiety aroused by the attack of an external agent, the virus of poliomyelitis,<sup>16</sup> and kept alive by the pain, the paralysis and the lessened physical tolerance. The exacerbations of symptoms, with the exception of those which followed fantasy formation, occurred when one would expect fatigue in an organic illness. At such times a subjective experience suggesting a sense of fatigue was present after the expenditure of a relatively small amount of energy, but the patient insisted that it was not the same as being tired.<sup>17</sup> It varied somewhat with the circumstances and the motivation<sup>18</sup> and became worse later in the day and with a greater amount of activity.<sup>19, 20</sup> It was eradicated by an amount of rest which was not inordinately greater than is required by more commonplace manifestations of fatigue.

The management of the symptoms arising after the patient returned to work was complicated by his reluctance to recognize that the symptoms which followed increased exertion were related to that increased exertion. He shared the general feeling in our society that a lesion which is not obvious is non-existent and that symptoms, where there is no obvious lesion, are "neurotic" and should be discouraged at all costs.

#### CONCLUSIONS

1. Exacerbations of symptoms presented by the patient during rehabilitation were due to results of the original disease process; the depriving effects of continued weakness and disability, the great release of anxiety which accompanied complete helplessness during the acute stage, and the change in the mental health of the patient due to somatic demands on psychic energy.

2. The more frequent and intense exacerbations of physical and mental symptoms occurred when the effects of what was overexertion to this particular patient were added to the results

of the disease process on the mental health of the patient.

3. When the patient was not optimally active, relatively minor defeats and frustrations tended to set off a complex of unhappy fantasies accompanied by anxiety which interfered with his personal happiness, with his interpersonal relations and with his efficiency.

4. Navigating the narrow passage between the Scylla of overactivity with accompanying muscular and psychological symptoms, and the Charybdis of idle hands with a proliferation of fantasies is an important problem to be considered in the rehabilitation of the patient who has suffered from acute poliomyelitis.

#### SUMMARY

When a patient with a residual paralysis following acute poliomyelitis returned to work his symptoms increased. They were primarily muscular but were accompanied by distressing symptoms of a psychological nature. These were felt by the patient to be even more incapacitating than the muscular aches and cramps. An occasional episode of prolonged depressive ruminations occurred in the early months after his return to work. The effects of organic illness on mental health are briefly discussed.

#### REFERENCES

1. SEIDENFELD, M. A.: Psychological effects of poliomyelitis. Poliomyelitis papers and discussions presented at the Second International Poliomyelitis Conference, compiled and edited for the International Poliomyelitis Congress, J. B. Lippincott Co., Montreal, 1952, p. 283.
2. SIMONSON, E. AND KEYS, A.: *Am. J. Physiol.*, **151**: 405, 1947.
3. SEIDENFELD, M. A.: *J. Consultative Psychol.*, **9**: 326, 1947.
4. GROSSMAN, M.: *Am. J. Psychiat.*, **109**: 849, 1953.
5. LOWMAN, C. L. AND SEIDENFELD, M. A.: *J. Consultative Psychol.*, **11**: 30, 1947.
6. STANFIELD, C. E.: *Am. J. M. Sc.*, **213**: 109, 1947.
7. CONN, J. H.: *A. M. A. Arch. Neurol. & Psychiat.*, **70**: 310, 1953.
8. RUSK, H. A. AND TAYLOR, E. J.: New hope for the handicapped, Harper & Brothers, New York, 1949, p. 216.
9. BARRY, N. B.: *Scholastic*, **48**: 12, 1946.
10. FAY, T.: *Am. J. Psychiat.*, **111**: 644, 1955.
11. GOFFMAN, E.: *Psychiatry*, **15**: 451, 1952.
12. SEIDENFELD, M. A.: *Am. J. Nursing*, **47**: 369, 1947.
13. BARKER, R. G., WRIGHT, B. A. AND GONICK, M. R., cited in reference No. 1 above.
14. DAVIS, J. R.: *J. Neurol. Neurosurg. & Psychiat.* (London), **9**: 23, 1946.
15. PARLOFF, M. B., KELMAN, H. C. AND FRANK, J. D.: *Am. J. Psychiat.*, **111**: 343, 1954.
16. FREUD, S.: New introductory lectures on psychoanalysis, W. W. Norton & Company, Inc., New York, 1933, p. 114.
17. MILLAR, A. T., JR.: *North Carolina M. J.*, **9**: 580, 1948.
18. SCHWAB, R. S. AND DELORME, T.: *Am. J. Psychiat.*, **109**: 621, 1953.
19. HENLEY, W. E.: *New Zealand M. J.*, **50**: 212, 1951.
20. SCHWAB, R. S. AND PRITCHARD, J. S.: *Neurology*, **1**: 133, 1951.



## ANÆSTHESIA IN OTOLARYNGOLOGY\*

G. EDWARD TREMBLE, M.D., and  
J. D. BAXTER, M.D., *Montreal*

THERE ARE MANY variations in the techniques and agents used for anæsthesia in otolaryngology throughout the country. For minor procedures—such as the removal of nasal polyps, submucous resections, or removal of a solitary papilloma in the oral cavity—local anæsthesia is universally considered the means of choice. However, for major otolaryngological surgery there are, figuratively speaking, two principal schools: that of local or regional anæsthesia and that of general anæsthesia.

In most instances it is not difficult to see why these two somewhat diverse schools arose. The dangers, difficulties and discomforts of general anæsthesia in the early days were in many centres far outweighed on the positive side by the relative ease and convenience of local anæsthesia in the hands of the operating otolaryngologist. Consequently such centres gravitated towards the local school. They have remained predominantly in this school and their teaching is along this line. In other centres, the level of general anæsthesia was higher and as a consequence it was adopted as the means of choice.

We are members of our respective schools either because of our past training or our present circumstances. Like all mankind, once we have adopted a particular behaviour pattern we tend to adhere to these habits whether they be good or bad. It is not our intention to arouse controversy or try to prove one school better than the other. All we wish to do is to present the concept of otolaryngological anæsthesia as practised at certain of the teaching hospitals of McGill University. We feel that the concept is sound because it has stood the test of time in certain major considerations—mainly the safety and the comfort of the patient.

The question of the safety of the patient is fundamental. We are all familiar with the saying, "The operation was a success but unfortunately the patient died." This is occasionally disastrously true and in such incidents death is usually due to the anæsthetic. It can occur with local or during general anæsthesia and in the

vast majority of cases is due directly or indirectly to the agent used. Articles have appeared in the literature comparing the relative toxicity of one agent—usually a topical preparation—with another. The impression left from some of these articles is that the particular agent used by the author involved is relatively non-toxic. The important thing to remember is that all agents—and especially those used for topical anæsthesia—can be toxic to a patient. This toxicity can vary quantitatively from patient to patient with the same agent. It is therefore imperative that we be completely familiar with the potentialities of the agent we commonly use and be able to recognize the earliest signs of toxicity and be in a position to counteract them.

It is imperative that the patient be properly prepared before anæsthesia—either local or general—and that all possible precautions be taken during the administration of the anæsthetic. Several factors must be considered in proper preparation.

1. *The general health of the patient.*—Does the patient have any serious systemic disease which will be affected by or have an effect upon the administration of a general anæsthetic or the use of a local anæsthetic? If so, is a modification of technique necessary or is the systemic condition such that operation should be deferred? What is the patient's blood picture—particularly his hæmoglobin? Has the patient any bleeding tendencies? All these questions should be answered preoperatively. In other words, you must know your patient thoroughly.

2. *Stomach contents.*—No general anæsthetic should be given for at least six hours but preferably eight to twelve hours after a meal, no matter how small the meal may have been. It is imperative that a patient for elective surgery under general anæsthesia be admitted to hospital the previous day so that, besides other preoperative preparation, the food intake can be properly controlled. Until a few years ago it was our policy to admit patients for certain types of elective operation under general anæsthesia on the morning of the operation. These patients or their parents were instructed not to take or allow to be taken anything by mouth after bedtime on the preceding evening. These instructions were often not carried out, and at some time during the anæsthetic the patient vomited stomach contents and occasionally aspirated material.

\*Gill Memorial Lecture, Roanoke, Virginia, April 5, 1955.



The danger of vomiting and aspiration of vomitus is not encountered to such a degree with local anæsthesia. Some of our attending surgeons allow patients undergoing minor procedures under local anæsthesia to have a light breakfast before operation. However, there is a danger of vomiting and precautions should be taken. It is certainly a factor we should consider in office practice because, if a patient aspirates vomitus, he may require endoscopy to clear his airway, and this is usually not feasible in the office.

3. *Pre-anæsthetic medication.*—The purpose of pre-anæsthetic medication is to make anæsthesia safer and more agreeable for the patient. Such medication should be a routine procedure before local or general anæsthesia.

Local anæsthetic agents are toxic drugs and certain precautions should be observed to lessen their toxicity. Most are central nervous system stimulants and are likely to produce convulsions if employed in large amounts. Although it is usually possible to control such reactions after they have become manifest, by means of central depressants, a far safer procedure is to administer sedatives routinely before a local anæsthetic. The barbiturates are at present the preparations of choice. The barbiturate selected should have a duration of action sufficiently long to ensure that absorption and destruction of the local anæsthetic is complete before the effects of the sedative have worn off. The barbiturate of choice is usually pentobarbitone (Nembutal).

Medication before general anæsthesia is intended to lessen apprehension and quiet the patient, to reduce the amount of anæsthetic needed and thus lessen its toxicity, and to counteract certain untoward or undesirable effects such as respiratory irregularities of the excitement stage and the excessive flow of mucus or saliva. By decreasing the patient's reflex excitability, proper pre-anæsthetic medication also permits the use of certain inhalation anæsthetics (such as nitrous oxide) which otherwise could not possibly produce complete surgical anæsthesia without asphyxia. In other words, all such medication is designed to make anæsthesia safer and more comfortable for the patient and more efficient for the surgeon.

Before general anæsthesia it is usual to give a combination of a sedative or narcotic drug with one that will diminish secretion of the respiratory tract and inhibit salivation. The narcotic most commonly used is morphine, but

sedatives such as barbiturates are also employed. The agent given to lessen secretions is atropine or scopolamine.

The dosage of the various medications is fairly standard for adults, but in children it is important to dose according to weight and not to age.

#### OTOLARYNGOLOGICAL ANÆSTHETIC TECHNIQUES

##### (A) *Local Anæsthesia*

For minor superficial nasal or oral procedures we use local anæsthesia, for example, for submucous resections, nasal polypectomy, or removal of sebaceous cysts. Except for very minor procedures the patients are, if possible, hospitalized and they are properly prepared preoperatively with emphasis on premedication.

The most commonly used topical agent is cocaine in 2%-5% or 10% solution. This is applied directly to the operative area by spray, swab or pack; it should never be injected. Cocaine is a relatively toxic agent and caution should be continuously exercised during its use. Toxic reactions are due to overdosage, hypersensitivity or too rapid administration. It should be remembered that its toxicity is roughly as the square of the concentration; that is, 5% is not 5 times as toxic as 1%—it is 25 times as toxic as 1%. There is considerable individual variation in susceptibility to the drug. The fatal dose has been stated to be 1.2 g. but severe toxic effects have been reported from doses as low as 20 mg. In 1924 the Mayer Committee<sup>1</sup> concluded that 1 to 1½ grains (60 to 90 mg.) could be considered a safe amount for topical anæsthesia. This is the equivalent of 1 to 2 c.c. of a 5% solution, which is very little with which to work.

The symptoms of cocaine poisoning are mainly referable to the central nervous system. The patient quickly becomes excited, restless, anxious and confused. Reflexes are hyperactive. Convulsions may occur. The pulse becomes rapid and the respirations irregular. Nausea, vomiting and abdominal pain are frequent. Death results from respiratory arrest. Acute poisoning by cocaine runs a very rapid course. There is a form of acute cocaine intoxication which results in almost immediate death, the patient often collapsing and dying before the physician realizes what has occurred. This type of poisoning probably results from rapid absorption of a high concentration of cocaine which is toxic to the heart.<sup>2</sup>

The specific treatment of acute cocaine poisoning is the intravenous administration of a relatively short-acting barbiturate, such as sodium thiopentone (Pentothal) or amobarbital (Sodium Amytal), plus other supporting therapy. The intravenous route is necessary because symptoms progress with great rapidity.

When a local anæsthetic is to be injected, the least toxic one possible should be employed. Procaine (Novocaine) is considered the safest agent available for this purpose. We use both procaine and dibucaine (Nupercaine). The latter is the most potent and most toxic of the commonly employed local anæsthetics and should be used only by those thoroughly familiar with the drug and with the technique of local anæsthesia. Nupercaine is employed for injection anæsthesia in 0.05 to 0.1% solution (1:2,000 to 1:1,000). Its combination with epinephrine is important because low concentrations are likely to cause some capillary dilatation. It has been our custom to use a 1:1,500 Nupercaine solution containing 15 drops of epinephrine to the ounce. In 0.1% concentration the total amount of Nupercaine solution injected should not exceed 100 c.c. Some anæsthetists consider this amount too high. Death has been reported from the administration of 135 c.c. of a 1:1,000 solution.

There is evidence that Nupercaine is rapidly destroyed by the liver. It also provides anæsthesia of long duration. Some surgeons recommend that advantage be taken of these two features by administering a preliminary anæsthetizing dose of Nupercaine 30 minutes before operation. At the time of operation, this preliminary anæsthetic dose will still be effective with respect to anæsthesia and yet the material absorbed will have been destroyed. This permits further administration of Nupercaine, which results in still more effective anæsthesia.

#### (B) *General Anæsthesia*

As Moore and Tolan<sup>3</sup> recently pointed out, some of the most difficult procedures in anæsthesia are encountered in otolaryngological surgery and the constant co-operation of a patient under regional anæsthesia must not be relied upon. Restlessness and motion at a crucial point by a patient thought to be co-operative may prove disastrous to the patient or to the operative result.

We feel—like Moore and Tolan<sup>3</sup>—that for all long procedures or technically difficult short procedures on the face, ear, nose, paranasal sinuses,

oral cavities, pharynx, larynx or trachea, the patient should be under general anæsthesia with an endotracheal tube to ensure an unobstructed airway and adequate oxygenation throughout the entire surgical period. The choice of the agent in these cases is immaterial provided the airway is established by intubation and the necessary precautions concerning explosions are observed.

It has been our policy in recent years to use general anæsthesia for the majority of, if not all, cases of tonsillectomy and/or adenoidectomy—both in children and adults. We feel that it provides the safest and most comfortable anæsthetic for patient and surgeon. In children induction is carried out with nitrous oxide or vinylene (vinyl ether) followed by ether. They are intubated and maintained on a non-rebreathing technique with mixtures or combinations of ether, nitrous oxide and oxygen, depending upon requirements. A Leigh or Stephen-Slater valve is used. The Leigh valve with its two metal diaphragms is not so efficient as the Stephen-Slater valve. The latter has two light rubber diaphragms which offer relatively little resistance to the patient's breathing as compared to the metal diaphragms in the Leigh.

For adults we use a thiopentone-curare induction-intubation followed by ether, and/or nitrous oxide and oxygen maintenance. The technique for an average adult male is to give 0.5 g. of Sodium Pentothal as a 2.5% solution intravenously followed by 15 mg. (100 units) of tubocurarine chloride solution intravenously. The patient is intubated and carried on ether, nitrous oxide and oxygen.

In good hands and with appropriate modification as to dosage, this technique can be used in children. At the Montreal Children's Hospital (formerly the Children's Memorial Hospital) it is now used for many tonsillectomies and adenoidectomies in children over three years of age. Nitrous oxide is used as a preliminary to ease the apprehension of the venipuncture.

The late Dr. Blaisdell,<sup>4</sup> in comparing other general anæsthetics, felt that intravenous Sodium Pentothal possessed the following advantages for tonsillectomy: (1) the ease and simplicity of its administration; (2) the complete relaxation obtained even in large and muscular male patients; (3) the avoidance of any sense of suffocation by the patient; (4) the speed of induction of anæsthesia; (5) the avoidance of



postoperative nausea and vomiting; and (6) the long period of postoperative somnolence which practically obviates the need for postoperative sedation. Blaisdell felt that the only great disadvantage is that bleeding is more brisk and profuse than with other types of anæsthesia, but we do not consider that there is any more bleeding with Sodium Pentothal than with other anæsthetics.

The method of intubation is important. We use a snugly fitting Magill or similar soft rubber tube. Intubation is carried out by visualizing the larynx with a Flagg or similar type of laryngoscope. The endotracheal tube is lubricated with 1% Nupercaine ointment and introduced through the glottis into the trachea under direct vision. We do not approve of the technique of blind intubation via the nose, as we feel that it tends on occasion to traumatize not only the nose but also the larynx.

We encounter no difficulty in carrying out oral surgical procedures with the endotracheal tube passing through the field. It is a simple matter to move it from one side of the mouth to the other away from where one is working. It does not interfere during adenoidectomy.

At the present time several "relaxants" are generally used—the original long-acting curare (tubocurarine) and the newer short-acting Anectine (succinylcholine chloride) and Brevidil (suxamethonium bromide). The usual dosage for male adults is 15 mg. (100 units) of curare or 40 mg. Anectine or Brevidil. Curare is effective for four to five minutes and in our opinion is the agent of choice. Its only adverse effect is respiratory depression. The short-acting agents are effective for one to two minutes. On occasion they cause profuse secretion of saliva of a tenacious character and extremely difficult to aspirate and clear away. We will not discuss the pharmacology of these agents here.

For major ear, paranasal, pharyngeal and laryngeal surgery, we use Sodium Pentothal-curare induction-intubation, as for tonsillectomy. The anæsthesia is maintained by: (1) Sodium Pentothal 0.2% intravenous drip and (2) nitrous oxide and oxygen (2:1) by endotracheal tube. A semi-closed circuit is used. We avoid explosive gases if possible since we may need to use an electric cautery or dental drills. Occasionally in ear and laryngeal surgery we supplement general anæsthesia with local anæsthesia. In the ear we inject Nupercaine and Epinephrine mainly, to

avoid bleeding if possible, and in the larynx cocaine is applied topically to diminish reflexes.

#### ANÆSTHESIA IN ENDOSCOPY

Certain clinics in this country take pride in the fact that the majority if not all of their endoscopic procedures are done under local anæsthesia. It is only on the rarest occasions that they resort to a general anæsthetic. Fortunately this concept is not widespread, especially for children. It is our policy to perform the majority of our endoscopic procedures under general anæsthesia and only resort to local anæsthesia in selected adult cases. An exception to this is a case of atelectasis due to the accumulation of bronchial secretion—no anæsthetic other than local should be used. In very young infants with atelectasis no anæsthetic is needed.

In children we use vinethene—ether anæsthesia which can be maintained through the bronchoscope. For œsophagoscopy in both children and adults, the patients are intubated. This does not interfere with the endoscopic procedure.

In adults we use a combination of local and general anæsthesia or local alone. If we are going to give a general anæsthetic, as we do for many laryngoscopies, all suspension laryngoscopies, some bronchoscopies and most if not all œsophagoscopies, the patient's pharynx and larynx are first prepared with a local anæsthetic—cocaine. This is done to reduce pharyngeal and laryngeal reflexes. The general anæsthetic of choice is Sodium Pentothal with curare. Sufficient Sodium Pentothal is given followed by curare to relax the patient for the introduction of the endotracheal tube and/or the endoscope, depending upon the procedure contemplated. Anæsthesia is maintained for bronchoscopy by the administration of further Sodium Pentothal as required—and for œsophagoscopy by a similar means or via the endotracheal tube with ether, nitrous oxide and oxygen. During bronchoscopy, oxygen is administered via the standard aspirating tube on the endoscope.

For local anæsthesia in adults, we use cocaine (2% and 5% solution) topically in the pharynx or larynx before instrumentation and directly through the endoscope during the procedure (as 1% spray or 10% swab). We feel that in all cases of postoperative atelectasis bronchoscopy should be done under local anæsthesia with a minimum of sedation. If specimens for cytology



are required, the procedure is best done under local anaesthesia, avoiding the use of atropine or scopolamine preoperatively.

#### ANÆSTHETIC EXPLOSION

Within the last few months we have had at one of our hospitals the unfortunate experience of an explosion during administration of a general anaesthetic for an endoscopic procedure. The anaesthetic being used at the time was ether. Fortunately no fatality occurred. According to Woodbridge<sup>5</sup> the incidence of anaesthetic explosion is low and only two deaths from this cause occurred in over two million anaesthesias.

Electric sparks are the cause of most such accidents and are mainly static in origin, arising as the result of friction in the anaesthetic machine or elsewhere in the operating room. Static electrical discharges can be prevented to some degree by elevating the humidity of the

air in the operating room to 65% or more and by complete and suitable grounding of the anaesthetic apparatus, patient and surgical team. Investigation after our explosion showed that because of familiarity certain basic precautions were being neglected; that is, maintenance of adequate humidity and grounding of apparatus and personnel. Rigid precautions have been re-introduced into the operating rooms involved.

Such anaesthetic explosions may occur while such agents as ether, ethylene, cyclopropane, divinyl oxide and ethyl chloride are being used.

#### REFERENCES

1. MAYER, E.: *J. A. M. A.*, **82**: 876, 1924.
2. TATUM, A. L., ATKINSON, A. J. AND COLLINS, K. H.: *J. Pharmacol. & Exper. Therap.*, **26**: 325, 1925.  
*Idem*: *J. A. M. A.*, **84**: 1177, 1925.
3. MOORE, D. C. AND TOLAN, J. F.: *A. M. A. Arch. Otolaryng.*, **55**: 350, 1952.
4. BLAISDELL, I. H.: *Tr. Am. Laryng., Rhin. & Otol. Soc.*, 1949, p. 24.
5. WOODBRIDGE, P. D.: *J. A. M. A.*, **113**: 2308, 1939.

1390 Sherbrooke St. West  
1509 Sherbrooke St. West

#### URINARY TRACT CALCULI IN POLIOMYELITIS\*

J. REID TAYLOR, M.D.,  
A. J. W. ALCOCK, M.D., and  
J. A. HILDES, M.D., Winnipeg

DURING 1952, 1953 and 1954, 1,390 acute cases of poliomyelitis were admitted to the Winnipeg Municipal Hospital, which was the major treatment centre for Manitoba. The urinary tract complications encountered form the basis for this paper. Of these, renal calculi proved to be the most important and by far the most troublesome.

We were aware of this potential hazard and took what prophylactic measures we could under the circumstances. Nevertheless, kidney stones did develop in many of the patients who had severe residual paralysis. Although the formation of renal calculi under these conditions is similar to their formation in other long-term recumbency states,<sup>1, 2</sup> some special features of these cases are worth recording. Some of the patients were used in a study of hyaluronidase treatment, which is reported elsewhere.<sup>3</sup> The

present paper is concerned mainly with the treatment, both conservative and surgical, of the renal calculi. Some of the early urinary tract complications of the acute stage are briefly discussed first, as they have some bearing on the formation of calculi in the kidney.

#### BLADDER COMPLICATIONS

**Paralysis.**—The first urinary tract complication encountered in the early stage of poliomyelitis was motor paralysis of the bladder, resulting in acute urinary retention. This was a common accompaniment of low spinal paralysis. Approximately 300 patients required catheter drainage for varying periods of time for this reason. Although complete detrusor paralysis was transient, return of bladder function often took several weeks and was sometimes incomplete, as shown by cystometrography carried out on a few of the patients.<sup>4</sup> The findings were mainly those of a hypotonic bladder with intact sensation.

**Bladder calculi.**—Initially, Zephiran (benzalkonium chloride) solution 1:20,000 was used as a bactericidal irrigant in patients with indwelling catheters. But on this regimen incrustations frequently formed on the catheter and sometimes became the nidus for bladder calculi. In

\*From the Winnipeg Municipal Hospital and the Department of Urology, Winnipeg Clinic. Read at the Annual Meeting of the Royal College of Physicians and Surgeons of Canada, Quebec, October 1955.

TABLE I.

INCIDENCE OF RENAL STONES IN PATIENTS UNDERGOING SHORT-TERM AND LONG-TERM RESPIRATOR TREATMENT AND IN A GROUP OF PATIENTS WITH SPINAL PARALYSIS BUT NOT UNDER RESPIRATOR TREATMENT.						
	Respirator treatment		Short-term		No respirator treatment but with spinal paralysis	
	Long-term					
	Sex	Mean age (years)	Sex	Mean age (years)	Sex	Mean age (years)
No. surveyed.....	98	M. 58 F. 40 25.8 25.2	32	M. 19 F. 13 16.8 18.7	112	M. 62 F. 50 13.9 14.6
No. with renal stones....	33	M. 19 F. 14 24.6 23.8	1	M. 1 F. 0 23 0	0	

nine patients bladder calculi were crushed and removed transurethrally and in three patients suprapubic lithotomy was carried out. When "G" solution<sup>5</sup> was adopted as a routine bladder irrigant, bladder calculi were effectively prevented from forming and a few, already present, were dissolved.

*Infection.*—A low-grade cystitis was common in patients with indwelling catheters but this subsided once the catheter was removed. Periurethral abscess and fistula, and epididymitis were uncommon, as was acute upper urinary tract infection. Only one patient, a pregnant woman, had pyelonephritis in the absence of obstruction. This patient subsequently developed stones.

It is difficult to assess the part played by asymptomatic low-grade infection of the upper renal tract in the development of renal calculi.

#### RENAL CALCULI

*Incidence.*—Table I shows the incidence of renal stone formation in patients given long-term and short-term respirator treatment, and in a group with spinal paralysis not given respirator treatment. A total of 237 patients required artificial respiration. Excluding deaths in the acute stage, 74 patients required respirator treatment for less than 40 days and 98 for long terms. Of the long-term group, 33 developed renal stones. One patient in a respirator for a short term developed stones. None were demonstrated in the group not treated in a respirator. It is unlikely that many cases of stones were missed. All patients given long-term respirator treatment were carefully and repeatedly reviewed. Thirty-two of the 74 short-term cases were adequately examined by x-ray, and although a smaller proportion of those without respirator treatment

had x-ray examination, both the short-term and non-respirator patients who were x-rayed were those with paralysis requiring prolonged recumbency.

*Etiology.*—In spite of the striking difference in the incidence of stones in the groups shown in Table I, the patients with short-term respirator treatment and those without are not suitable controls in assessing the part played by prolonged artificial respiration *per se* in the development of calculi. They are younger and, as a group, did not suffer severe paralysis of upper and lower limbs as was the case with those needing long-term respirator treatment. Therefore, the long-term cases were much more immobilized and were slower in beginning weight-bearing. As in prolonged recumbency for any reason,<sup>1, 2</sup> we consider the major factors of importance in the development of renal stones to be immobility with resulting demineralization of bone, and hypercalcinuria.

*Type of stones.*—The calculi were typical radioopaque recumbency calculi of the soft triple phosphate type. They were usually multiple and often bilateral, but there were several instances of solitary calculi or of involvement of only one kidney with multiple calculi. The stones varied greatly in size from minute particles to stones of up to 2 or 3 cm. in diameter.

Fig. 1 illustrates the size such stones can attain over several years. This patient is not included in Table I as she contracted poliomyelitis in 1941 and has been in a respirator for the intervening 14 years.

*Diagnosis.*—The importance of regular, repeated x-ray screening of patients in respirators is obvious. Some difficulty was encountered in carrying out this procedure. While the patients were still ill, and for those who were completely





Fig. 1.—Radiograph showing bilateral renal and ureteral stones in a 33-year-old female after 13 years in a respirator. The right kidney does not function. After two operations on the left, this side was completely cleared.

dependent on their respirators, portable x-ray technique was used. This was not entirely satisfactory and procedures were worked out with portable chest respirators and "frog breathing"<sup>6</sup> to take the patients to the x-ray department. Another difficulty was clearing the bowel for satisfactory visualization, as patients with extensive spinal paralysis have great difficulty with constipation and intestinal gas for months after the acute stage of the disease. In doubtful cases radiography was repeated until satisfactory films were obtained. Intravenous and retrograde pyelography was done as indicated both in the x-ray department and by portable techniques. However, in the main, plain films of the abdomen after careful preparation were quite adequate for the purpose.

**Onset of stone formation.**—Because of the difficulties noted above, satisfactory x-ray examination in many of the patients was achieved only after some months. In 18 patients the stones were apparent on the first radiograph, although sometimes only on hindsight. However, in 16 of the patients who developed stones there was one or more negative x-ray examination before the stones were seen. The minimum time be-

tween onset of recumbency and evidence of stone formation in each of these patients is indicated in Fig. 2. Four of the patients were

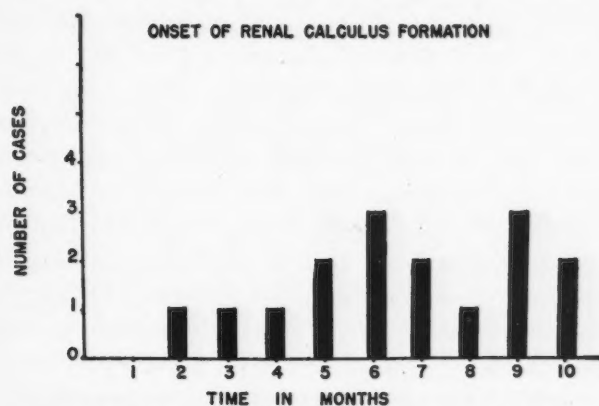


Fig. 2.—Histogram showing time of onset of renal calculi in 16 patients. In each of these there was at least one negative x-ray examination before stones were discovered. The interval between the onset of recumbency and the date of the last negative radiograph is charted in each case.

out of respirators but still bedridden when their stones were first visualized.

#### PROPHYLACTIC TREATMENT

Prevention of stone formation was hampered both by the paralysis and, for some time, by the lack of special equipment such as rocking beds<sup>7</sup> and standing boards.<sup>8</sup> It is therefore not possible from our data to evaluate accurately the worth of all of the measures described below.

**Activity.**—As these stones develop in recumbency, frequent changes of position and early activity are recognized methods of prevention. During the 1953 epidemic the rocking-bed type of respirator<sup>7</sup> was put in use as early as possible after the acute illness had subsided. Almost all chronic patients—no matter how paralyzed—can tolerate being out of their respirators and on a rocking bed for a few hours a day. Some patients may be treated in this way during the acute stage if their respiratory paralysis is not complete. As a further method of increasing activity, the patients were allowed up in wheelchairs as soon as possible. When necessary, respiration was maintained with the cuirass type of portable respirator or by "frog breathing".

**Weight-bearing.**—Increased activity alone does not prevent hypercalcinuria, which is reduced to normal only by weight-bearing and ambulation.<sup>9</sup> As soon as possible after the acute illness was over, patients with extensive and severe spinal paralysis, including respirator patients, were made to do a limited amount of weight-bearing



using standing boards. The patient was strapped to a board, respiration again maintained when necessary with a cuirass respirator or by "frog breathing", and the board propped against the wall. This was carried out each day and the duration of standing increased gradually as the patient's tolerance increased. The time was limited not only by respiratory embarrassment but also by joint discomfort and by congestion of the dependent legs. We did not investigate quantitatively the effect of weight-bearing on calcium excretion. The standing board actually served a dual function. Not only was it thought to help prevent demineralization, but it also appeared to favour the passage of small renal calculi. This effect, which was frequently observed, was presumably due to the change in position of the patient, permitting stones to fall into the renal pelvis and ureter from the calices that had been in a dependent position as long as the patient remained recumbent.

One of four patients in the present series who were transferred to us after initial hospitalization elsewhere had complete spinal paralysis and had been entirely dependent on artificial respiration for over two years before we saw him. Increased activity and the use of the standing board combined with a high urinary output caused the passage of all stones within three weeks.

This method of combined posturing and weight-bearing was used in all patients who could tolerate it and who were not able to be up and about in wheelchair or on crutches for at least a few hours each day. By this means 14 patients spontaneously voided stones, a few as large as 9 x 6 mm., and four patients were completely cleared of stones. Even in those who were not completely cleared in this way, the subsequent management was made easier.

*Urine output.*—An important prophylactic measure that can be instituted immediately in the acute stage and maintained as long as necessary is to ensure a high rate of urine flow. For the first week or so in seriously ill patients with bulbo-spinal or encephalitic lesions, fluids were given by the intravenous route. When the febrile illness subsided, many patients still had residual difficulty in swallowing. In these, plastic stomach tubes allowed an adequate intake of fluid and calories. After the acute stage, by far the most important factor in maintaining a large volume of urine was to impress its importance on the

patients and on the nursing staff. To do this, daily records of urinary output were maintained so that failure to adhere to the prescribed routine could be noted and remedied. We aimed at a urinary output of over one litre per day and preferably 1.5 litres, and were, by and large, successful in this.<sup>3</sup>

*Calcium intake.*—The intake of calcium in the diet was restricted in all chronic cases in respirators to under 1 g. a day, although no attempt was made to prevent the intestinal absorption of calcium by the use of phosphorus-binding agents.

*Hyaluronidase.*—Because daily parenteral administration of hyaluronidase has been proposed for preventing the recurrence of kidney stones a controlled trial of this treatment was carried out for seven months on a group of chronic cases in respirators both with and without stones.<sup>3</sup> The results did not indicate that hyaluronidase had an effect on stone formation in these patients.

#### SURGICAL TREATMENT

*Indications.*—We have been rather conservative in our indications for operation, resorting to surgery only when the stones had caused serious signs and symptoms of obstruction or when repeated examination had shown that the stones had increased to such a size that spontaneous passage was unlikely.

*Ureteric tone.*—The state of the ureters requires some discussion at this point. Some patients passed larger stones down the ureter without pain than has been our experience in patients without poliomyelitis. Fig. 3 shows a stone 1.0 cm. x 0.8 cm. at the lower end of the left ureter. This was a solitary calculus formed in the renal pelvis of a male, aged 23, which had traversed the ureter without pain or discomfort. At operation the ureter in these patients was often seen to be atonic, although there was no evidence of chronic or acute infection and stones had not previously passed. Nor was there evidence of hydro-ureter (Fig. 3). We have no explanation for this phenomenon. However, with this in mind we have tended more and more to watch patients when ordinarily we would have advised early operation.

*Transurethral manipulation.*—Three patients spontaneously passed moderately large stones into the lower ureter, where they stopped. In one of these the stone obstructed the ureter at



Fig. 3.—Intravenous pyelogram in a 23-year-old male who had developed a left renal calculus during the nine months he was in a respirator. The 10 x 8 mm. stone has passed to the lower ureter without pain or discomfort. There is no evidence of hydronephrosis or hydroureter. The stone was subsequently removed by transurethral manipulation.

this point, but in the other two the stone in the lower ureter was asymptomatic (Fig. 3) and remained in that position for two weeks or more. In all three the stones were successfully removed transurethally. This was accomplished in the usual way, although stiffness of the hip and knee joints and aberrant calcification in the ligaments about the hips<sup>1</sup> were troublesome in positioning the patients for cystoscopy.

Another point of interest in transurethral procedures in female patients is the marked laxity of the introitus. Most of the females in this series were multiparous and, in addition, the loss of fat and muscle tissue in the pelvis and pelvic floor made it possible to do a four-finger vaginal examination. The easiest way to remove small to moderately large calculi from the bladder in these patients was to introduce a foreign-body forceps into the full bladder and guide the stones to the forceps with the hand in the vagina.

*Operative procedures.*—At first these patients were regarded as impossible surgical risks. The first one operated on illustrates most of the difficulties.

Her preoperative radiograph is shown in Fig. 1. She had then been in a respirator for 13 years. Her vital capacity was less than 300 c.c., but, when she was well, she was able to be out of her respirator for a few hours a day. Other than a few movements of her fingers, she had complete spinal paralysis. Most of her large joints had very limited movement and radiographs of her bones showed extreme osteoporosis. She weighed about 75 lb. In the six months preceding

her first operation she had had two bouts of ureteric obstruction with pain, fever, vomiting, oliguria and serious electrolyte imbalance. Practically no veins were available for parenteral administration of fluid and electrolytes. After the first of these episodes surgical treatment was considered but rejected. Because symptoms recurred three or four days after the second bout subsided, operation seemed the lesser of two very great risks.

Artificial respiration was maintained by the anaesthetist from the time she was removed from the respirator, throughout the operation and until she was back in the respirator. General anaesthesia was used. In other patients this was facilitated by a pre-existing tracheotomy. Needless to say, curare was unnecessary. At operation there was no subcutaneous fat or abdominal muscle. The complete absence of muscle tissue—including the psoas, quadrati and the levators—changed the anatomical position of the kidneys and ureters and increased the technical difficulties.

Sixteen patients (Table II) have been operated on by one of us (J.R.T.), including the one mentioned above who was operated on twice and was completely cleared of the left-sided calculi. The ureter was opened and stones were removed in two patients. In 10 patients unilateral pelvolithotomy was carried out. In six of these, all stones were removed at operation, but in four of them with multiple small calculi, prolonged postoperative irrigation through a nephrostomy tube was required. It is of interest to note here that one patient with a small calculus remaining in his right renal pelvis complained of pain when his nephrostomy tube was irrigated with "G" solution. He was changed to saline irrigations and left too long on these. A routine kidney-ureter-bladder film revealed two large new stones in the right renal pelvis. He was immediately placed on continuous irrigation with solution "G" through a two-way nephrostomy tube. Within six weeks there was a marked decrease in the size of the stones and two months later they had disappeared.

In two patients it was necessary to remove the kidney. This was done with great reluctance, as both still have complete spinal paralysis and will be permanently in a respirator, with the chance of forming stones in the remaining kidney.

TABLE II.

OPERATIVE PROCEDURES.	
Nephrectomy.....	2
Pelvolithotomy.....	6
Pelvolithotomy and nephrostomy.....	4
Ureterolithotomy.....	2
Transurethral removal.....	3
Total.....	17



Postoperative care is very important—not only with regard to fluid and electrolyte balance, to the care of the wound and the regular irrigation of the nephrostomy tube, but also as regards prevention of respiratory infection and atelectasis. Healing of the wound was sometimes delayed because of accumulation of serum or blood clot between the fascial layers. There is no muscle action to force this out, and drainage was often very prolonged.

Although 20 of the 34 patients with stones still have renal calculi, the results to date have been gratifying. There have been no deaths in this series. Fifteen patients are completely free of stones.

#### SUMMARY AND CONCLUSIONS

1. A high incidence (approximately one-third) of recumbency calculi was encountered in poliomyelitis patients requiring long-term treatment in a respirator.

2. Repeated x-ray examinations throughout the whole period of recumbency are necessary.

3. Although the usual prophylactic measures must be modified on account of the dependence on artificial respiration and severe extensive

lower motor neurone paralysis, increased activity, weight-bearing, high urinary output, restricted calcium intake and control of gross infection are considered important prophylactic measures.

4. Multiple small and moderately large stones will often pass spontaneously with surprising ease with the use of the measures mentioned above.

5. Stones in the lower ureter can be removed by transurethral manipulation in spite of some difficulties in cystoscopy caused by contractures and stiffness of hips and knees.

6. When surgery on the kidney or ureter is necessary, it can be carried out with relative safety and with good results.

#### REFERENCES

1. O'CONNELL, F. B. JR. AND GARDNER, W. J.: *J. A. M. A.*, 153: 706, 1953.
2. SWARTZ, D. AND TAYLOR, J. R.: *Canad. M. A. J.*, 63: 559, 1950.
3. TAYLOR, J. R., ALCOCK, A. J. W. AND HILDES, J. A.: *Am. J. M. Sc.*, 230: 536, 1955.
4. COSGROVE, J. B. R. AND ANTHONY, J.: Unpublished data.
5. SUBY, H. I. AND ALBRIGHT, F.: *New England J. Med.*, 228: 81, 1943.
6. DAIL, C. W., AFFELDT, J. E. AND COLLIER, C. R.: *J. A. M. A.*, 158: 445, 1955.
7. WRIGHT, J.: *Am. J. Nursing*, 47: 454, 1947.
8. COVALT, D. A. et al.: *J. A. M. A.*, 151: 89, 1953.
9. WYSE, D. M. AND PATTEE, C. J.: *Am. J. Med.*, 17: 645, 1954.

#### THE CLINICAL EFFECTS OF CHLORPROMAZINE IN CEREBRAL PALSY

F. G. DAY, M.D. and  
J. L. GULLEY, M.D., Edmonton, Alta.

IT HAS BECOME increasingly evident in the treatment of cerebral palsy that further attempts must be made to obtain medications to assist us in our rehabilitation programs. Drugs used until very recently, though of some slight assistance in a proportion of cases, have not rendered sufficient benefit to warrant their use. Recent encouraging articles on the use of chlorpromazine (Largactil) have made us reconsider the whole drug situation. Basmajian and Szatmari<sup>1</sup> in February 1955 showed the complete relief of spasticity by electromyogram studies in 11 of 13

patients, or 86%, immediately after intravenous injection of 50 mg. of chlorpromazine, with marked, though incomplete, improvement in the remaining two patients. They suggested that further studies of the drug were indicated in various upper motor neurone lesions. We have undertaken to do this testing at the Edmonton Cerebral Palsy Clinic, using 22 patients with cerebral palsy of the athetoid and spastic variety. It was further felt that if chlorpromazine was of benefit, its combination with mephenesin (Tolserol) or any of the other curarizing drugs where the enhancing effect of chlorpromazine on associated drug therapy could be manifested, might be worthy of trial.

Considerable research was necessary in an attempt to determine what tests would be most appropriate to an experiment of this type. It was finally decided that motor age tests were the

best, since we were interested in an actual improvement in the individual as he underwent therapy rather than in any comparison between individuals.

The patients were tested before receiving any drug therapy. They were seen and assessed clinically, a complete blood count including differential count was performed, and they were then started on a small initial dose of chlorpromazine. After approximately one week they were re-tested and the dose was increased to what was thought would be an optimum dose of chlorpromazine for the individual patient. They were maintained on this dosage for two weeks, whereupon they were tested for a third time. At each of these interviews the parents of the child or their representative was required to be present, so that we could obtain their impression as to actual improvement other than that evident in our various tests. At this stage the chlorpromazine was supplemented by mephenesin in moderate dosage, and the medication was carried on for a further week, at which time a fourth test was performed along with the usual blood count and the parents were interviewed. All drugs were then stopped and the final and fifth testing was done after the child had been without any medication for a further week.

Our results, classified in 5 groups, are given in 22 cases in which the entire scheme was actually followed through (Table I).

Group 1. Both technicians and parents recorded substantial improvement, and test records showed improvement.

Group 2. Test records only showed improvement.

Group 3. Test records showed no improvement, but the actual time to accomplish the various tests became shorter.

Group 4. The technicians and parents felt that clinical improvement had occurred, but this was not substantiated either by test figures or in decreased test time.

Group 5. No improvement at all had occurred.

Our tests showed quite definitely that there was no improvement after and at the particular stage of the test where mephenesin had been added to chlorpromazine. In other words, of the curare-like products mephenesin had no significant effect on the muscle spasm of cerebral palsy, even when enhanced by the effect of chlorpromazine.

TABLE I.

RESULTS IN 22 PATIENTS, AGE 3-21.			
	Spastic	Athetoid	Total
Group 1.....	5	2	7
Group 2.....	1	..	1
Group 3.....	1	4	5
Group 4.....	2	2	4
Group 5.....	4	1	5

Complete blood counts were taken at regular intervals to detect any blood changes, but none were noted in this series. All children were watched closely for jaundice or any other signs of liver toxicity, but none have been noticed to date.

Since testing these children we have maintained several of those who benefited definitely on a moderate dose of chlorpromazine alone for some two or three months, and have noticed no signs of toxicity in any of these children.

#### CONCLUSIONS

The *in vitro* experiments of Basmajian and Szatmari<sup>1</sup> are not borne out *in vivo*. Certainly chlorpromazine would appear to be the best drug available in the treatment of cerebral palsy, but the percentage of patients receiving a beneficial effect is much lower than the 86% previously reported. Groups 1 and 2, or 36% of the cases tested, had a definite and marked effect sufficient to make their treatment much more beneficial while they were in the clinic. Groups 3 and 4, or 40%, received a doubtful benefit; though not substantiated by our testing methods, our impressions were that improvement had occurred at least to some degree. It does not appear that the benefit in these two groups was sufficiently great to warrant the use of the drug in the clinic. Group 5, or 24%, definitely received no effect.

Briefly, one-third of our cases of cerebral palsy showed sufficient improvement to warrant the use of chlorpromazine while two-thirds did not. The addition of mephenesin had no appreciable effect.

We feel that chlorpromazine should be considered for all patients receiving treatment in a cerebral palsy clinic, at least while they are actually undergoing therapy. Since it appears impossible to predict what child will respond favourably to the drug, a trial period, which



must be accompanied by accurate test methods, is necessary on admission to clinic. The effect is greatest in those cases of marked apprehension with regard to therapy. It is still doubtful whether or not these children should be given this drug when not under clinic treatment, since the reported cases of toxic liver damage, though only a small percentage must be considered.

## REFERENCE

1. BASMAJIAN, J. V. AND SZATMARI, A.: *A. M. A. Arch. Neurol. & Psychiat.*, 73: 224, 1955.

## Case Reports

### CONGENITAL ARTERIOVENOUS FISTULA OF THE EAR

A. W. FARMER, M.D., *Toronto* and  
A. M. CLOUTIER, M.D., *Montreal*

CONGENITAL abnormal arteriovenous fistula of the ear is an extremely rare condition. As far as is known, only one case has been reported in the literature.<sup>1</sup> Horton<sup>2</sup> uses the term "arteriovenous fistula" to designate any abnormal communication between artery and vein, to cover in fact all the various descriptive terms, e.g. cirroid aneurysm, arteriovenous aneurysm, pulsating venous aneurysm, aneurysm serpentina, aneurysm by anastomosis, and angioma cavernosum, all of which have essentially the same pathological process.

A 7-year-old girl was admitted to the Hospital for Sick Children on October 6, 1954, with an arteriovenous fistula of the ear. The patient was born in 1947 with a small, flat, port-wine stain along the upper and outer aspect of the helix of the right ear. The parents noted a definite increase in the size of the lesion and also that the colour had changed to a dark blue when the child was 18 months old. At two years of age she was taken to a dermatologist, who recommended surgical treatment. It was at this time that a pulsation was noted in the ear. Nothing further was done until July 1952, when she was first admitted to the Hospital for Sick Children. The "hæmangioma" of the ear was excised and the feeder vessels were cauterized. The patient was readmitted in April 1954, when the right ear was described as being enlarged and thickened by a pulsating, bluish-purple hæmangioma in the upper three-quarters of the ear. On this admission the "re-formed

## RÉSUMÉ

Vingt-deux malades atteints de paralysie cérébrale et suivis à la clinique d'Edmonton reçurent des doses de chlorpromazine d'après leurs résultats dans les épreuves de quotient de motricité. La méphénésine fut ajoutée après la deuxième semaine de traitement. Les résultats ont prouvé que ce dernier médicament n'offrait aucun avantage aux effets obtenus par le premier, et que mêmes ceux-ci étaient loin d'approcher le degré d'amélioration rapporté par d'autres auteurs. Bien qu'un tiers seulement des malades semblent bénéficier du traitement par le chlorpromazine au cours de leur réhabilitation, il est bon d'en faire l'essai dans chaque cas pour quelques semaines, et sous étroite surveillance, puisqu'il est impossible de prévoir quel est celui qui en retirera un bénéfice.

M.R.D.

hæmangioma" was again excised. Many blood vessels in the region were tied and the superficial blood vessels were cauterized. At the time of the patient's final admission in October 1954, the ear was large, purple, pulsating and warmer than the surrounding tissues. A bruit was heard over the right mastoid process. There was no evidence of cardiac enlargement by percussion. The blood pressure was 120/60 mm. Hg and a systolic apical murmur was heard. (Blood pressure was not recorded on the previous admission.) Otherwise the physical examination was essentially negative.

At operation three wire sutures were inserted into the base of the auricle and tied over small felt pads to control bleeding. The pulsation in the ear was arrested after these wire sutures had been tied and the pulse slowed considerably. A V-shaped piece of auricle with its base at the helix and the apex in the concha and containing most of the arteriovenous anastomosis was excised. Some of the hæmangiomatous material was excised from the edges of the incision. The edges were then sutured together, and a few feeder vessels running superficially on the remaining auricle were tied off. The wire sutures were then removed.

The piece of auricle excised measured approximately 3 x 2 cm. There were numerous blood spaces on the cut surface. Microscopically, a mass of fibrous tissue was seen which contained numerous large venous spaces and arterioles which were intermingled and embedded in a loose vascular stroma.

The patient's postoperative course was uneventful. Pulsation was no longer present and a bruit could not be heard. The blood pressure, however, remained unchanged. The patient was discharged after five days in hospital. She was seen again in December 1954, at which time a strong pulsation was felt between the helix and antihelix in the upper half of the ear. Otherwise, the ear appeared normal. It was no warmer than the left ear and there was no discoloration. The blood pressure was 110/75.

## DISCUSSION

Arteriovenous anastomoses, more or less permanently open, occur normally in the nail bed, finger tips, thenar eminences and upper half of the ear, but usually do not occur on the dorsa of the fingers, hands and feet, or on the legs above the ankle, arms above the wrist, and the lower half of the ear.

The anastomosis is divided into three parts: an arterial portion; a narrow, thick-walled inter-

\*From the Department of Surgery, The Hospital for Sick Children, Toronto. Read at the Annual Meeting of the Canadian Society of Plastic Surgeons, Caledon, Ontario, June 24, 1955.



Fig. 1



Fig. 2



Fig. 3

Fig. 1.—Full face, right ear, October 6, 1954. Preoperative. Fig. 2.—Full face, right ear, December 1954. Postoperative. Fig. 3.—Lateral view, right ear, December 1954. Postoperative.

mediary portion; and a thin-walled, funnel-shaped, venous portion. It is felt that the arteriovenous anastomosis has the function of maintaining the temperature of exposed parts and regulating heat loss.

The most common sites for abnormal arteriovenous anastomoses are the head (scalp and intracranially), neck and extremities; the condition is rare on the trunk. The deviation from normal is quantitative rather than qualitative. The condition produces three major changes.

1. *Local changes.*—Because of the more direct shunting of arterial blood into the vein, the vein becomes dilated and tortuous. There is disagreement on the actual pathological changes in the vein itself. However, the arteries just proximal to the anastomosis become thin and dilated with degeneration of the coats. The reason for these changes is unknown.

2. *Regional changes.*—If the condition exists in a limb there is hypertrophy, increase in temperature and trophic changes. There is a diminution in flow through the capillaries and an increase in venous pressure which interferes with the return of deoxygenated blood, with a resultant anoxæmia. More recently it has been stated that because of the anoxæmia the pH is lowered and, for this reason and not because of the increased blood flow *per se*, bone growth occurs. Actually, it is well known that bone growth can occur with venous stasis.

3. *Systemic changes.*—Because of the abnormal venous anastomosis there is a decrease in the

peripheral resistance. Since the normal diastolic pressure is maintained by the elastic recoil of the arteries against the peripheral resistance, there is a normal systolic and low diastolic pressure, with a resultant increase in pulse pressure. Depending on the size of the anastomosis there is a proportionate loss of blood to the system. This is compensated for by an increase in circulatory volume. Two reasons are given for the cardiac enlargement in the more severe cases: (1) Because of the low diastolic pressure, the nutrition of the heart is impaired, with a consequent dilatation; (2) the heart has to cope with an increased venous return to maintain output and to handle the increased volume of blood.

The treatment of this condition is very difficult, and it is cured only by closing all anastomoses which, in most cases, are multiple and minute. Treatment by surgical excision and use of sclerosing solutions has been disappointing. It is felt that the most effective solution to the problem is to do nothing at first, and amputate the region when the heart is affected.

#### SUMMARY

A case of abnormal arteriovenous anastomosis has been presented. Treatment by surgical excision is described and the pathological changes produced by the condition are discussed.

#### REFERENCES

1. LEWIS, D. DE W.: *Lancet*, 2: 621, 1930.
2. HORTON, B. T.: *J. A. M. A.*, 98: 373, 1932.



DUPLICATION OF THE  
INTESTINAL TRACT\*R. L. LAWTON, M.D.,† and  
EDWIN F. ROSS, M.D.,‡ Halifax, N.S.

A SIX-DAY-OLD white female was admitted to the Halifax Children's Hospital on December 11, 1954, with a history of failure to pass meconium since birth and abdominal distension of four days' duration. There was no apparent pain and no history of vomiting. The infant would eagerly take 1½ oz. of milk formula at each four-hourly feeding. The mother, aged 42, was hypertensive, with renal calculi, and birth of the baby was by Cæsarean section at term. The family history was otherwise non-contributory.

The infant was well developed, weighed 7 lb. 5½ oz., and had rapid and laboured respirations. Disturbed circulation of the lower half of the trunk and the lower limbs was shown by a very definite cyanosis of the parts. Distended venous channels were noted over the abdomen and lower chest. Inspection of the abdomen revealed distension very similar to that seen in a closed-loop large-bowel obstruction, with fullness in the right lower quadrant extending up to the costal margin and across to the upper abdomen. This, however, gave a flat note on percussion and was firm to palpation. The left lower abdomen was tympanitic. Intestinal waves were visualized and felt coursing over the left side of the abdomen, and an x-ray film of the part showed an opaque tumour mass in the right side displacing the abdominal contents to the left. Rectal examination was negative. A small, warm-water enema was given shortly after admission without faecal result.

## LABORATORY DATA

On admission the hæmoglobin level was 109%. This decreased to 68% (9.6 g.) by December 28; the white cell count was 15,400; the differential count was essentially normal. Electrolyte studies on admission were not satisfactory. Postoperative determinations on December 17 showed a serum sodium level of 126 mEq./l., potassium 5.16 mEq./l., chlorides 117 mq./l.; on December 24, serum sodium 126 mEq./l., potassium 3.76 mEq./l., chlorides 108 mEq./l.

## OPERATION

On the morning of December 12, a laparotomy was performed through a right lower split-rectus incision. On opening the abdomen a small amount of free fluid was noted. A large tumour filled the right abdomen and at first appeared to be a loop of obstructed bowel with two blind pouches. Further exploration revealed one large cystic mass situated for the most part on the right side, and a smaller though similar enlargement on the left joined to the first by a thin segment. The mass resembled colon and occupied a considerable part of the abdomen. Its true nature became evident after aspiration of 8½ oz. of greyish milky fluid had made its delivery from the abdominal cavity possible (Fig. 1).



Fig. 1

Its only attachment was to the mesentery of the terminal ileum, 1½ inches (4 cm.) proximal to the ileo-cæcal valve. Separation was effected and there was no intraluminal bowel communication.

Postoperative therapy consisted of intravenous administration of fluids, electrolytes and whole blood. The child was also given 5% glucose in water orally. Fæcal material was passed per rectum shortly after operation. A stormy period of vomiting and diarrhoea ensued, with a weight loss of over 2 lb. in 10 days. Recovery was satisfactory and she was discharged on January 11, 1955, weighing 6 lb. 1 oz.

## GROSS DESCRIPTION

The specimen consists of an irregularly shaped cystic structure containing brownish material and weighing 220 g. (Fig. 2).

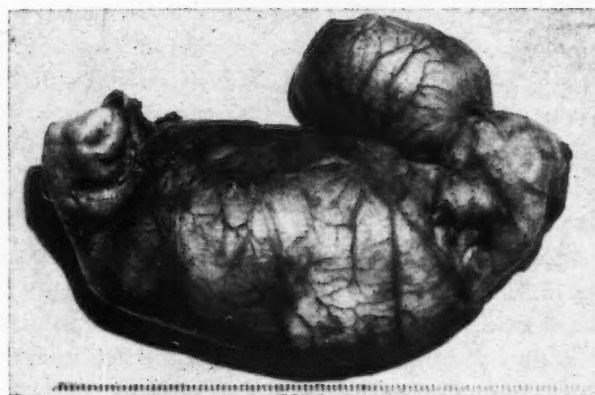


Fig. 2

## MICROSCOPIC DESCRIPTION

The cyst is lined with irregular mucosa similar to large intestine, and beneath it there is muscularis mucosa and also well-differentiated circular and longitudinal bands of muscle. The serous coat shows some fibrous thickening and increased vascularity (Fig. 3).

## DIAGNOSIS

Sequestration cyst of the alimentary tract.

\*From the Department of Surgery, The Children's Hospital, Halifax, N.S.

†Resident Surgeon, Halifax Children's Hospital.

‡Associate Surgeon, Halifax Children's Hospital.

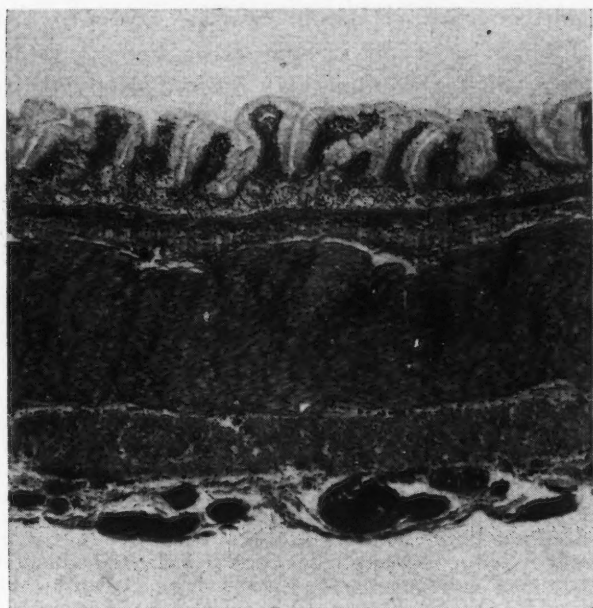


Fig. 3

#### ETIOLOGY

Several theories have been advanced to explain the etiology of duplications. The most commonly accepted one is that of Lewis and Thyng,<sup>4</sup> who observed groups of epithelial cells occurring along the oesophagus, stomach and intestine of the embryos of the pig, rabbit and man. The cell nests usually disappear, but may persist and become separated from these structures, and give origin to duplications. Bremer<sup>5</sup> divides the malformations into spherical and tubular types on the basis of embryological origin. The spherical ones originate from the true diverticula frequently found on the antimesenteric border of the alimentary canal in embryos of the eighth or ninth week, through failure of normal diverticular regression. The tubular forms and some of the spherical ones originate by an abnormal persistence of the vacuoles present in the "solid stage" of development of the intestine in the sixth or seventh week embryo, with confluence of the vacuoles and formation off a parallel channel. However, Holt and McIntosh<sup>6</sup> suggest that they arise from a midline splitting of primordial tissue, and complete duplications of the colon occur as reported by Weber and Dixon.<sup>7</sup> Further duplications of bladder, urethra and uterus may be associated with the condition, which suggests a more orderly development normally than the mere persistence of vacuoles of the solid epithelial stage.<sup>6</sup> According to Hughes-Jones,<sup>8</sup> sequestration of cells from the primordial intestinal tube could account for

the occurrence of cysts histologically similar to an intestinal wall.

In a recent article McLetchie *et al.*<sup>12</sup> report the frequent association of gastric and certain intestinal diverticula with hemivertebra and the presence of a "neurenteric" strand connecting the alimentary formation with the spinal cord. It is their belief that duplications are due to the occurrence of ento-ectodermal adhesions in the presomite phase of embryonic development. These connect the developing gut with the neural tube and give rise to cysts which they contend are actually pulsion or traction diverticula. They note further that a spinal anomaly is not always obvious, since growth usually modifies and induces some fusion of the vertebral halves. Such a spinal deformity was not detected in the case presented here.

#### SYMPTOMS

Duplication of the intestine is usually discovered in early childhood, but may be detected at any age. It is more common in males. The case reported herein presented with symptoms of intestinal obstruction associated with abdominal distension, palpable abdominal tumours, and circulatory embarrassment of the lower limbs by pressure of the tumour masses.

Visible intestinal peristalsis and intermittent pain may be prominent symptoms, and pressure of a large cyst on the mesenteric vessels may cause necrosis and sloughing of the adjacent intestine with resultant hæmorrhage. In duplications lined by gastric mucosa, severe intestinal bleeding may likewise ensue because of ulceration occurring with the liberation of hydrochloric acid and pepsin, the condition then simulating a bleeding Meckel's diverticulum. Malnutrition and dehydration are evident in the cases with intestinal obstruction, and the lesion may also be the site of a volvulus or intussusception.

#### TREATMENT

The treatment is surgical in all cases. There are four possibilities. Enucleation of the duplication is the simplest and may be accomplished when the duplication has a separate mesentery. However, in the majority of cases this is impossible because the intimate attachment of the duplication and the contiguous bowel will not allow removal without injury to the bowel. Similarly the blood supply is usually common to the duplication and the intestine, and attempted



removal of the cyst alone may cause interference with the blood supply of the normal bowel. Then in most cases of duplication of the jejunum, ileum and ileo-cæcal valve region, it is preferable to excise the anomaly with the adjacent segment of the attached intestine and to re-establish the continuity of the alimentary tract by direct anastomosis or by a Mikulicz procedure.<sup>11</sup> A further choice consists of anastomosis between the cyst and the alimentary tube, effecting permanent drainage into the intestinal tract.<sup>2</sup> A fourth choice is marsupialization, which may be done to avoid resection of the bowel when desirable.<sup>9</sup>

#### SUMMARY

A case of duplication of the colon in a six-day-old infant is reported. The child presented with bilateral abdominal tumours, marked abdominal distension and partial intestinal obstruction. A large cyst without communication with the alimentary canal, and having a separate mesentery, was removed at laparotomy by simple excision without injury to the bowel.

Theories of etiology and symptoms are discussed. The treatment is always surgical.

#### REFERENCES

1. LADD, W. E. AND GROSS, R. E.: *Abdominal surgery of infancy and childhood*, W. B. Saunders Company, Philadelphia, 1941, p. 83.
2. PACHMAN, D. J.: *Am. J. Dis. Child.*, 58: 485, 1939.
3. DONOVAN, E. J. AND SANTULLI, T. V.: *Ann. Surg.*, 126: 289, 1947.
4. LEWIS, F. T. AND THYNG, F. W.: *Am. J. Anat.*, 7: 505, 1907.
5. BREMER, J. L.: *Arch. Path.*, 38: 132, 1944.
6. HOLT, L. E., JR. AND MCINTOSH, R.: *Holt pediatrics*, 12th ed., Appleton-Century-Crofts, Inc., New York, 1953, p. 541.
7. WEBER, H. M. AND DIXON, C. F.: *Am. J. Roentgenol.*, 55: 319, 1946.
8. HUGHES-JONES, W. E. A.: *Brit. J. Surg.*, 22: 134, 1934.
9. ROSENBERG, S. A.: *Ann. Surg.*, 119: 973, 1944.
10. FISHER, H. C.: *Arch. Surg.*, 61: 957, 1950.
11. GROSS, R. E.: *Surgery of infancy and childhood*, W. B. Saunders Company, Philadelphia, 1953, pp. 221, 228 and 241.
12. McLEITCHIE, N. G. B., PURVES, J. K. AND SAUNDERS, R. L. de C. H.: *Surg., Gynec. & Obst.*, 99: 135, 1954.

### COMPULSIVE NEUROSIS WITH CACHEXIA\*

A. J. GLAZEBROOK, M.D., J. MATAS, M.D.  
and H. PROSEN, M.D., *St. Boniface, Man.*

THREE DIAGNOSTIC CRITERIA of anorexia nervosa are disturbances of eating, loss of weight and amenorrhœa.<sup>2</sup> Some insist that an obsessive com-

pulsive neurosis should also be present.<sup>4</sup> The elimination of an organic basis for the symptoms, such as Simmonds's disease, is of course essential. The following case is reported for two reasons. A profound depression of gastrointestinal motility afforded a possible basis for some of the patient's eating difficulties. An extremely favourable therapeutic response was observed after lobotomy, although the operation did not influence the sluggish function of the alimentary tract.

Miss X is 33 years old and the ninth child of healthy parents. Her siblings are healthy and there is no family history of hypochondriasis or of constitutional disease.

She had a happy and normal childhood and did well at school, achieving a grade 9 education. At the age of 14 she began a courtship which lasted for four years with a boy two years older than herself, and although they met infrequently they soon developed plans for marriage. When she was 15 years old she became very ill with erythema nodosum, and she lost 30 lb. within three weeks, her weight falling from 110 to 80 lb. During the next year she had three further but less severe attacks, and between the first and the second bout of erythema nodosum she suffered from an episode of anorexia, nausea, and vomiting severe enough to require her hospitalization for three weeks.

Her illnesses interfered with her romance and she became deeply concerned over her state of health. She suffered from backaches and her menstruation became irregular and infrequent, with periods of amenorrhœa lasting for several months.

In her 17th year her anorexia, nausea, and vomiting spells became more persistent. When she was 18 her fiancé broke off their unofficial engagement because of her ill health and shortly afterwards married another girl, an event which caused her considerable remorse and self-criticism. She began to work occasionally as a nurses' aide but stayed at home much of the time to assist her mother. Because of her eating difficulties she could not gain weight and at the age of 21 she finally ceased menstruating. When she was 29 years old she underwent a hæmorrhoidectomy for prolapsed and bleeding internal piles. At this time she was described as being markedly anæmic and emaciated. During the next three years she developed some swelling of her legs and began to lose her secondary sexual characteristics.

She was readmitted to hospital in November 1952, with œdema of the eyelids, face, abdomen, hands and ankles. She had marked pallor and weighed 60 lb. She had no pubic or axillary hair and had lost the hair of the outer third of her eyebrows. Her thyroid was diffusely enlarged and her breasts were atrophic. Panhypopituitarism was suspected, but a gamut of tests failed to confirm the diagnosis. Her level of total blood proteins was 4.6 g., with 2.0 g. albumin and 2.6 g. globulin; hæmoglobin level was 60%, and her blood picture that of an iron deficiency anæmia. She had no signs of avitaminosis.

She was treated with a high calorie diet by means of tube feedings, together with tonics, intravenous alcohol, and cortisone. Her œdema disappeared and at first she lost weight, but her blood protein level returned to normal. During the next four and a half months in hospital she gained only seven lb. and was at length discharged weighing 57 lb.

In the spring of 1954 she was admitted to hospital because of severe cough and dyspnoea of a week's duration, together with intense weakness. She again had pitting œdema of both lower legs. On this occasion her blood chemistry revealed hypokalaemia as well as hypoproteinæmia, and her electrocardiogram indicated potassium deficiency. She had some consolidation of both

\*From the St. Boniface Hospital.

lower lung lobes. This rapidly cleared with antibiotic therapy, but her weight remained at 50 lb. in spite of vigorous measures, including tube feedings. As no progress was being made, a further consultation was obtained and 1 g. reserpine four times daily by mouth was prescribed. At once she began to gain at the steady rate of  $\frac{1}{2}$  to 1 lb. daily; her hypokalaemia disappeared and her electrocardiogram returned to normal; she felt stronger and showed some initiative, in that she demanded to be discharged from hospital. During the 14 days of reserpine treatment, she had put on 10 lb. and now weighed 60 lb., her best weight for some time.

After leaving hospital, she obtained employment repairing garments and did quite well at first. She asked the physician who had prescribed the reserpine for employment in his household but this was refused and she became despondent and self-reproachful and lost weight in spite of a continuation of the reserpine therapy.

As she was going downhill, she was readmitted to hospital and for the next six months her condition remained stationary or even showed slight deterioration; certainly no improvement was obtained. Eventually a prefrontal leukotomy was advised and a bilateral inferior medial cut was carried out. Immediately after the operation she began to eat avidly although she retained a tendency to vomit; 38 days later she weighed 98 lb., a post-operative gain of 44 lb. Her diet was now restricted to 2,000 calories daily and she lost her vomiting habit. Three months after the leukotomy she left hospital feeling well and weighing 102 lb.; while she still had amenorrhoea, she had lost all of her eating difficulties.

During the convalescent period oedema appeared in the ankles and then spread to become generalized. Her basal metabolic rate, observed to be minus 27 pre-operatively, became plus 31 after the operation. The oedema was considered to be associated with the rapid nutritional build-up, and it disappeared before she went home.

#### MENTAL EVALUATION

In addition to the features described in the case report, this patient sometimes showed features of an obsessive-compulsive neurosis in that she often found it necessary to do the same piece of work over and over again, and her employers thought she was not efficient because she did things unnecessarily. In hospital she often undid her crocheting to do it again. At times she saw religious scenes before her, but these seemed more in the nature of visions than visual hallucinations. She felt unworthy of living and often had spells of depression. The loss of her fiancé concerned her deeply, and after an automobile accident in July 1953 she became troubled by guilt and felt that she deserved Hell.

Shortly after her leukotomy she became more assertive but this behaviour soon modified itself. Her emotional level had always seemed rather flat but further flattening was now noted. She could now speak of her former problems with less concern and denied a few of her former worries. She did, however, show fair insight and appeared anxious to leave the hospital, return to work and make a new life for herself.

#### GASTROINTESTINAL FINDINGS

Her chief eating difficulty appeared to be a feeling of satiety and she often induced vomiting to relieve the sensation. "I can only eat a little bit," she would say, or "I enjoy eating but I cannot keep a big meal down."

Radiological examinations showed that at four hours after a barium meal the stomach was still half full, although the duodenal cap was normal and there was no apparent obstruction. This hypomotility also affected the small bowel, so that the head of the meal took seven hours to reach the terminal ileum, and at that time traces of barium still remained within the stomach.

While the transit through the stomach and small bowel was slow, there was no dilatation or tonal loss of small bowel loops, as is seen in the sprue syndrome,

and her fat absorption was normal. Nevertheless, assuming her meals passed along as slowly as did the barium, when she ate her lunch her stomach would still contain half her breakfast, and there seemed good physiological basis for her complaint of satiety and her statement that she could only eat a little bit at a time.

Reserpine was prescribed because it is said to increase bowel motility and cause weight gain. Both of these effects were indeed noticed, and besides the weight gain reported above, the barium meal showed her stomach to be completely empty in four hours, and the small bowel motility normal. Unfortunately these gratifying results were short-lived and could not be repeated, and on her last admission to hospital reserpine by mouth and by injection failed to influence the gastrointestinal motility which had reverted to its previous sluggishness. Urecholine was then given by mouth and by injection up to a maximum dosage of 180 mg. daily, at which level it was producing side-effects of flushing and sweating, but this too failed to accelerate the transport of barium through her stomach and intestine.

The leukotomy cuts were designed to interrupt visceral afferent fibres and in view of her voracious appetite after the operation it was expected that her bowels would at least show a normal rate of activity; but two months later, when she was judged to be well on the road to recovery, a barium series showed no change in the hypomotility.

#### DISCUSSION

Kay and Leigh reviewed 38 cases of anorexia nervosa treated and followed up at the Maudsley Hospital, London.<sup>3</sup> No specific traits to justify recognition of anorexia nervosa as a separate psychiatric entity could be found. The nonpsychotic psychiatric symptoms in the group were mainly hysterical, hypochondriacal, or obsessional. Other writers insist that obsessional features are necessary for the diagnosis, and according to Dubois,<sup>1</sup> anorexia nervosa is fundamentally a compulsion neurosis with cachexia as a leading symptom. The woman described here certainly showed features of an obsessive-compulsive type.

The patients co-operate poorly in analytical and distributed psychotherapy, and treatment is generally unsatisfactory. Electro-convulsive therapy has been used with success in some cases, but symptoms persist in 50% and the neurotic pattern remains almost unchanged.<sup>2</sup> Attention has been drawn to the value of leukotomy in reducing tension and obsessive ruminations by the use of anterior cuts, and good results have been obtained in anorexia nervosa;<sup>5</sup> a return of virility with gonadal enlargement has been reported.<sup>2</sup>

Most of the patients with anorexia have gastrointestinal symptoms. These consist of vomiting with or without nausea, fullness, belching, bloating, epigastric burning pains and constipation. Some have episodes of gluttonous over-eating.<sup>4</sup> An interesting point in our case was that



the gastrointestinal symptoms were explicable on the basis of a functional disturbance of the alimentary tract revealed on several occasions by barium-meal studies as hypomotility of the stomach and small intestine. Although urecholine did not influence the hypomotility, it was expected that it would be overcome by the operation, as recorded observations in both man and animals show that increased gastric motility follows prefrontal leukotomy.<sup>8</sup> To our surprise, no such result was obtained although the patient's gastrointestinal symptoms disappeared. Our assumption that the symptoms could in any way be related to depressed gastrointestinal function was therefore disproved. The apparent action of reserpine in restoring the activity of the bowels to normal could be explained on an emotional basis, as the patient besides receiving a new drug also saw a new physician, and her relapse occurred not because of withdrawal of the reserpine, but when she was refused employment in the physician's house. If this explanation is accepted, it is still difficult to understand why no change took place after leukotomy.

#### SUMMARY

1. A case of anorexia nervosa with obsessive-compulsive features and gastrointestinal symptoms associated with a gastrointestinal functional disorder was greatly improved by prefrontal leukotomy.

2. The leukotomy failed to influence the hypomotility of the gastrointestinal tract which was present, although emotional causes apparently succeeded in bringing about a temporary reversal of this hypomotility to a normal level of activity.

3. The hypomotility was also resistant to large doses of urecholine.

#### REFERENCES

1. DUBOIS, F. S.: *Am. J. Psychiat.*, **106**: 107, 1949.
2. HEMPHILL, R. E.: *Lancet*, **2**: 345, 1944.
3. KAY, D. W. AND LEIGH, D.: *J. Ment. Sc., Lond.*, **100**: 411, 1954.
4. LOGAN, V. W. AND BOBOWIEC, B. B.: *Ann. Int. Med.*, **36**: 1093, 1952.
5. NEMIAH, J. C.: *Medicine*, **29**: 225, 1950.
6. SARGANT, W.: *Lancet*, **2**: 87, 1951.

#### DEPORTATION IN HYDATIDIFORM MOLE

J. BERNARD COSTELLO, M.D.,\*  
Vancouver, B.C.

MRS. G., 27 years old, para 1, gravida III, had a normal menstrual period on April 14, 1953. About the end of May, approximately two weeks after the missed period, the patient developed persisting and progressive nausea and vomiting, which resulted in weakness, weight loss and dyspnoea necessitating admission to the country hospital on July 1. While in hospital she had one severe bout of uterine hæmorrhage requiring transfusion. This was followed by intermittent spotting. By mid-July, at three months' gestation, the patient was complaining of œdema, blurring of vision and rapid enlargement of the abdomen. On examination the fundus was found to be two fingerbreadths above the umbilicus. During this stay in hospital she was treated by general supportive measures but received no intravenous therapy other than the one transfusion.

She was transferred to this hospital at midnight of July 20. She was anæmic and weighed 85 lb., and her abdomen was distended by a tense tender uterus, the size of a six months' pregnancy. There was marked dependent œdema and slight dyspnoea; B.P. 140/90, Hb. 49%, pulse 100, respiration 30, white cell count 10,000, with normal differential; total serum proteins 4.7 mg. %, non-protein nitrogen 43 mg. %. The patient was oliguric, passing only 300 c.c. in the first 24 hours. Urinalysis revealed 3-plus protein, 2-plus white cells and 2-plus granular casts.

The admission diagnosis was toxæmia with hydatidiform mole and anæmia. The cervix was tightly closed but her general condition was so poor that operative interference was precluded.

She was placed in an oxygen tent and blood was procured for transfusion. On July 21, 12 hours after admission, the patient had a sudden onset of bright red hæmoptysis associated with marked dyspnoea. Her temperature remained normal. A chest radiograph (Fig. 1a) revealed a bilateral miliary infiltration, more extensive on the left side. The patient appeared moribund and it was now felt that deportation of uterine contents had occurred, giving rise to the hæmoptysis.

A transfusion was started and maintained. The following day, July 22, her blood pressure had risen to 170/100 and the patient went into spontaneous labour. This period was associated with severe uterine hæmorrhage and the patient lost 2,000 c.c. of blood before evacuating 1,375 g. of benign mole (Fig. 2a). Despite rapid replacement of blood the patient went into shock. No further bleeding occurred after evacuation of the mole but her hæmoglobin value was now 32%. Blood electrolyte levels were normal. With gradual blood replacement the general condition of the patient improved. A Friedman test done on July 22 was positive

\*From the Department of Obstetrics and Gynæcology, Vancouver General Hospital, Vancouver, B.C.

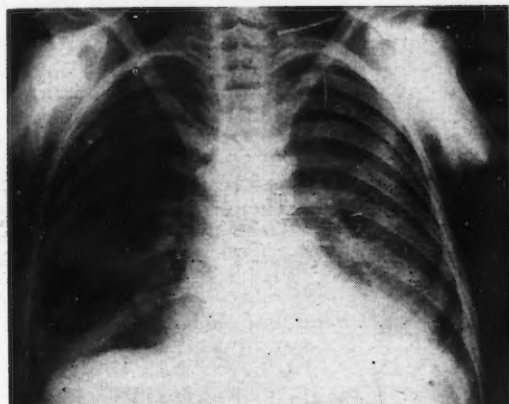


Fig. 1a

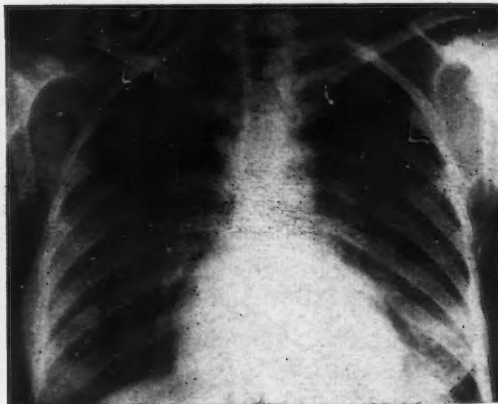


Fig. 1b

Fig. 1a.—Note discrete miliary lesions in left lung field. Fig. 1b.—Lung field clear five days later.

in a dilution of 1:100. A repeat radiograph, five days after the original, showed marked clearing of the miliary chest lesions (Fig. 1b).

On July 31, dilatation and curettage was carried out, at which time the fundus was the size of a 4½ months' pregnancy. The right ovary was irregularly enlarged to the size of a man's fist. A large amount of decidua and a small amount of molar tissue were obtained (Fig. 2b). Microscopic examination revealed swollen degenerated villi with small plaques of benign syncytial trophoblastic proliferation.

The patient was discharged from hospital on August 4, apparently well but with a positive Friedman test.

The Friedman test (routine) was repeated on September 23, and was negative. The patient was readmitted on September 27 because of an episode of bleeding and resulting anaemia (Hb. 47%). On this admission it was noted that the patient had a very labile blood pressure varying from 140/85 to 170/110. Dilatation and curettage were performed on September 30, at which time only a small amount of tissue was obtained. Microscopic examination revealed only benign molar tissue. The uterus was only slightly enlarged and the right ovary had returned to normal size.

On October 2, the Friedman test was positive but it was negative when repeated on November 26.

The patient was last examined on June 29, 1954, one year after her illness. At this time her Hb. was 88%, B.P. stable at 110/70, weight 100 lb. Her menses were regular and normal. Urinalysis was negative.

This case has been presented in some detail, not because it illustrates the classical features of hydatidiform mole with severe pre-eclampsia and haemorrhage, but because it illustrates the potentially fatal prognosis of a histologically benign mole and the problems of management when clinical doubt as to benignity exists. An unusual feature of this case was the transient radiological and clinical findings (haemoptysis and miliary lesions) of no proven etiology, open to speculation concerning possible deportation of some material from the uterine contents.



Fig. 2a



Fig. 2b

Fig. 2a.—Note large hydropic villus on right, with attached plaque of active but benign trophoblastic proliferation.  $\times 110$ . Fig. 2b.—This shows several villi with benign clumps of syncytial proliferation.  $\times 110$ .



# PROLONGED SUCCINYLCHOLINE APNŒA REVERSED BY PROSTIGMIN\*

S. G. PALETZ, L.R.C.P. and S.,  
Edmonton, Alta.

MUSCLE RELAXANTS are an integral part of modern anæsthetic procedures, despite the occasional case of prolonged apnœa. In view of the present-day confusion regarding the mode of action of the relaxants, the case to be presented is of interest, particularly as it emphasizes a new hypothesis.<sup>1, 2</sup>

M.M., a 59-year-old nurse, was admitted to the University Hospital on October 9, 1955, for a cholecystectomy. Her medical history had been uneventful until six months before admission, when there was an attack of right upper quadrant pain, associated with nausea and vomiting. Subsequently, similar attacks recurred intermittently. There was a marked intolerance to fatty foods. No jaundice had occurred.

She was well-nourished, weighing 150 lb. The pulse rate was 76, blood pressure 134/86 mm. Hg, temperature 97.4° F. and respiration rate 18. Results of urinalysis, blood count and blood chemical studies were all within normal limits.

On October 12, 1955, cholecystectomy and appendectomy were performed. Premedication consisted of Demerol (pethidine) 100 mg. and hyoscine hydrobromide 1/150 grain, one hour before the operation. The anæsthetic was started at 8.00 a.m. Anæsthesia was induced with sodium thiopentone 0.5 g., Anectine (succinylcholine) 40 mg. and Syncurine (decamethonium) 2 mg. After thorough oxygenation, a No. 8 Magill portex tube, fitted with a low pressure, inflatable rubber cuff, lubricated with jelly, was easily passed into the trachea. The cuff was not inflated. The patient exhibited generalized muscular twitchings associated with the rapid intravenous injection of this type of relaxant. At 8.11 a.m. an intravenous slow drip of 500 c.c. of 5% dextrose and 0.2% sodium chloride was started. A 500 c.c. solution of 0.1% succinylcholine in 5% dextrose and 0.2% sodium chloride was attached, but was not started. In the interim, anæsthesia had been maintained by manual compression of the reservoir bag, with flows of two litres of nitrous oxide per minute, two litres of oxygen per minute and a small quantity of ethyl ether in a circle absorber Heidbrink machine. The positive pressure valve was set at 10 mm. Hg. At 8.14 a.m. the patient started tentative respiratory movements. The succinylcholine drip was then started at a slow rate together with complete controlled respiration. The surgical incision was made at 8.18 a.m. Anæsthesia was continued using the technique described, with the rate of succinylcholine drip empirically controlled, guidance being taken from the resistance felt in the reservoir bag and the surgeon's opinion as to the degree of flaccidity of the operating field.

The systolic blood pressure and the pulse rate were checked regularly. At 9.48 a.m. the peritoneum had been closed. The remaining abdominal contents had been found within normal limits. On closing the abdomen the surgeon commented on the completely relaxed, flaccid peritoneum. During all this time the systolic blood pressure remained in the region of 140 mm. Hg, the pulse rate at 86 and the colour of the patient good. As soon as the peritoneum was closed

(9.48 a.m.), the succinylcholine drip and the ethyl ether were discontinued. The patient had then had a total of 290 mg. succinylcholine, 2 mg. of decamethonium and one ounce of ethyl ether. After that, nitrous oxide and oxygen were given as described. The controlled respiration was reduced to about 14 compressions of the reservoir bag per minute for limited periods, with observation for any spontaneous respiratory movements of the patient. At 10.15 a.m. the skin had been sutured and the dressing completed. The patient was still completely apnœic. There was no tracheal tug. The legs and arms were completely flaccid. The pupils were equal and not dilated but did respond to light. The conjunctivæ were moist. The blood pressure and the pulse rate were practically unchanged. At 10.17 a.m., 10 c.c. of Coramine (nikethamide) was injected rapidly intravenously. There was no change. A further 5 c.c. of Coramine was given, still with no improvement. It has been found from experience that Coramine given in this manner sometimes initiates respiration, when apnœa is due to controlled respiration.<sup>3</sup> At 10.47 a.m. the systolic blood pressure was 165 mm. Hg and the pulse rate 120. The general condition was good. Periods of non-ventilation and of hyperventilation had no effect. The patient remained completely flaccid and apnœic. At 12.20 p.m. 500 c.c. group O, Rh negative unmatched, refrigerated blood was started. The systolic blood pressure was 180 mm. Hg and the pulse rate was 120. The blood transfusion was empirical. At 12.50 p.m. about 250 c.c. of blood had been given. There was still no improvement. The patient had now been apnœic for over four hours. Prostigmin (neostigmine) 0.5 mg. was slowly injected intravenously at 12.54 p.m. Two minutes later there was a definite flicker of the chest wall. The blood pressure remained at 180 mm. Hg, but the pulse rate dropped to 80. At 1.00 p.m. 1/100 grain atropine sulphate was injected intravenously. At 1.05 p.m. prostigmin 0.5 mg. was repeated. At 1.07 p.m. a well-marked tracheal tug was present and the patient was making a good effort to breath spontaneously. Her respirations were assisted. At 1.27 p.m. the blood pressure was 120 mm. Hg and the pulse rate 86. At 1.30 p.m. the anæsthetic was entirely discontinued and the patient extubated. At 2.00 p.m. the patient was responding to questioning and could be returned to her bed. It must be remembered that the patient was kept anæsthetized till 1.30 p.m. The patient was ambulant on October 14, having made an uneventful recovery, and was discharged from hospital on October 22. She had no recollection of anything untoward.

## DISCUSSION

Normal muscle contraction is dependent on acetylcholine, which bridges the gap between the motor nerve and the muscle at the motor end-plate. It aids in initiating the wave of depolarization which causes the muscle to contract. To regain polarization of the muscle, the pseudocholinesterase (plasma cholinesterase) must inhibit the acetylcholine. Thus alterations in the values of acetylcholine or plasma cholinesterase may affect the normal mechanism.

The d-tubocurare group of muscle relaxants act by preventing the acetylcholine from exerting its action at the motor end-plate and initiating the depolarizing action. The curare "competes" with the acetylcholine for the motor end-plate and creates a non-depolarization situa-

\*From the University of Alberta Hospital, Edmonton.

tion. They are antidepolarizers. The physostigmine group, by its activity in reducing the cholinesterase, allows the acetylcholine to accumulate and eventually re-exert its efficacy, so that relaxation is abolished.

The succinylcholine group of relaxants act in the same way as acetylcholine, i.e. by depolarization. This explains the muscular twitchings, before relaxation, observed after the rapid intravenous injection of this group. Here, the anticholinesterase drugs (prostigmin, etc.), by allowing an accumulation of acetylcholine, would potentiate the relaxing effect. They are thus contraindicated.

The causes of prolonged apnœa are numerous. Briefly, they may be classified into two groups: (1) Central—direct interference with the respiratory centre, due to any anæsthetic overdose, relative or actual, and electrolytic imbalance, e.g. plasma CO<sub>2</sub> abnormality. (2) Peripheral—an overdose of muscle relaxant, relative or actual.

Cases have occurred in apparently normal patients in which prolonged apnœa has followed the use of the succinylcholine groups of drugs, without any particular failure of technique. Recently, Churchill-Davidson<sup>1, 2</sup> has suggested that in these patients there may be a dual mechanism at work which accounts for the apnœa. In this type of patient, the succinylcholine group acts in its usual manner as a depolarizer, and then in a curare-like manner as a non-depolarizer or "competitor". When the latter takes place, the relaxation of the muscles can be reversed by the anticholinesterase drugs, prostigmin, etc., just as in the curare group. The case described could fit in with this hypothesis.

Detailed questioning of both the patient and her husband revealed that no abnormality had ever been observed by them. As both are successful medical professional people, their observations are acceptable, for the purpose of the questioning was made clear to them.

A total of 290 mg. of succinylcholine and 2 mg. of decamethonium over approximately 90 minutes can hardly be considered an overdose, either centrally or peripherally. Injections from the same bottles had been used in other patients without any complication. One might say that there was a sensitivity and consequently a relative overdose.

The total volume of ethyl ether employed was insignificant. As the patient was well ven-

tilated all the time, the plasma CO<sub>2</sub> level could not have fluctuated much. One cannot be certain that the cholinesterase level was not low, but even if this were so, the apnœa would not have lasted for over four hours.

A similar technique has been successfully employed in this hospital for a considerable period.

One can thus assume that this patient, apparently normal but with a sensitive state, underwent a change from a depolarization to a non-depolarization neuromuscular block, and the process was reversed by a physostigmine type of drug. Obviously, many factors are still obscure.

#### CONCLUSION

In a case of prolonged apnœa after the use of the succinylcholine group of muscle relaxants, if all other possible causes have been excluded, it may be assumed that the case falls into the dual mechanism group. The apnœa may then be reversed by the injection of an anticholinesterase drug. It is suggested that Tensilon (edrophonium, N.N.R.) 10 mg. be used, as this is a short-acting anticholinesterase. If the diagnosis has been incorrect, the apnœa will not be potentiated for too long. The principle here is the same as in the Tensilon test for myasthenia gravis.

#### SUMMARY

A case is described where prolonged apnœa occurred in an apparently normal white woman after use of the succinylcholine group of muscle relaxants. The total dose employed appears minimal in comparison with past experiences. It is suggested that the patient exhibited a "sensitive state" to these relaxants. Treatment with prostigmin based on the hypothesis of dual mechanism reversed the apnœa. It is suggested that a similar test be applied in cases of prolonged apnœa after use of the succinylcholine group of relaxants, either due to an actual or a relative overdose.

#### REFERENCES

1. CHURCHILL-DAVIDSON, H. C.: Personal communication, 1955.
2. *Idem*: *Proc. Roy. Soc. Med.*, 48: 621, 1955.
3. WYANT, G.: *Anæsthesia (C)*, 8: 56, 1953.



RHEUMATIC OR COLLAGEN  
PNEUMONIA

T. G. HEATON, M.B., Toronto

ABOUT APRIL 1, 1955, H.W.S., a man of 63, felt "run down," and had chilly sensations and pain in the left lower chest, feet, shoulders, and wrists. Only the wrists became slightly swollen, and he continued at work. On May 9 an industrial survey chest radiograph showed abnormal shadows in the lung at the left base, and led him to consult Dr. J. R. Lind, who found his temperature elevated and persuaded him to stop work and go to bed. Persistence of rales at the left base and persistence of multiple joint pains led to consultation with the writer, who was unable to make a positive diagnosis, so the patient was hospitalized for investigation on May 21.

In 1921 he had pneumonia complicated by pleural effusion, side uncertain. He had had a chronic cough, sputum, and a slight wheeze for many years, since whooping cough at the age of 10. Previous routine chest radiographs had always been reported as showing some abnormality, but these films and reports, made in the early 1940's, could not be located. Haematuria was investigated in 1950, and no abnormality was found. In 1953 multiple joint pain was relieved after extraction of teeth.

He is married, with children, and is a stockkeeper for a manufacturer of automobile tires. There is no history of exposure to chemical fumes or harmful dusts. He is of British extraction, long resident in Toronto, with no tropical residence.

There was no family history of allergic disorder or any form of arthritis.

**Functional.**—All functions were reported normal except as here described.

**Hospital investigation.**—Bronchoscopy by Dr. John Paterson on May 21 showed pus coming from both lower lobe bronchi. There were no tumour cells in several specimens of sputum or in bronchial swabs. May 31: Hb. 63%, neutrophils 78%, eosinophils 3%, basophils 2%, lymphocytes 9%, monocytes 8%, white cell count 6,300, erythrocyte count 3,400,000. Toxic granulation was present. L.E. cells were not found in peripheral blood or sternal marrow (Dr. James Watt).

Sputum was repeatedly negative for tubercle bacilli on smear. Cultures of sputum were made daily for several days and no predominating growth of any pathogen was ever found. Organisms reported at any time were *Neisseria sicca*, *Streptococcus viridans*, *Aerobacter aerogenes*, *Paracolonobacter intermedius*, "Gram-positive bacilli", *Escherichia intermedium*, *Micrococcus*, and *Staphylococcus pyogenes* (a few in specimen of June 30, a heavy growth on July 8). Blood cultures were repeatedly negative, except one containing micrococcus. Cultures of fluid from the knee joint were negative, including special cultures for brucella.

The Wassermann reaction was negative. Cold agglutinins were absent from serum. Agglutination reactions were negative for paratyphoid and typhoid bacilli and brucella.

An electrocardiogram on June 16 was normal. Urine: specific gravity 1020; no albumin or sugar in qualitative tests.

**X-rays.**—Teeth were not remarkable. Chest radiographs are reproduced herewith (Figs. 1 and 2). The migrating pneumonic disease is readily seen.

**Clinical progress.**—Temperature in the evening regularly reached 99.4°–99.6° F. On May 30 his neck, right wrist, and both shoulders showed restricted movement and were painful; metatarsophalangeal regions of both feet were tender, painful and slightly swollen. Effusion was easily demonstrable in both knee joints on June 10. Right pleural effusion developed on June 20 (Fig. 3).

**Treatment.**—Because of the x-ray signs of apparently inflammatory lung disease, rales, and low-grade fever, penicillin was tried first, and as response failed to appear, the dose was increased to 2 million units by intramuscular injection seven times daily. Penicillin was abandoned on May 30. Erythromycin was given in doses of 100 mg. six times daily from June 4 to 15. By this time it was evident that no definite bacterial cause could be established and that the antibiotics were having no detectable effect. Aspirin, which had been given from the start in dose of 10 grains, 6 times daily, was increased to 15 grains, five times daily, June 15, and given without other medication, without evident effect on fever or joints. The joints were painful throughout the course of illness to June 20.

On June 20 it was decided that the lung disease must be a "collagen pneumonia". Aspirin dose was reduced and ACTH 25 units given intravenously daily for five days. Immediate improvement was apparent. Meticorten (prednisone) 30 mg. daily was started on June 28, and the dose reduced to 20 mg. on July 20. Improvement continued (Fig. 4). The sedimentation rate on June 17 was 118 mm. in one hour, and fell steadily and gradually to 14 mm. by July 18. Temperature returned quickly to normal with ACTH and remained so. Joint pains, effusion, and swelling disappeared in two or three days and remained absent. The pleural effusion and x-ray signs started to clear at once when hormone therapy was started. Rales present bilaterally from May 30 gradually disappeared. Cough and sputum became very slight, and sputum, which had been yellowish throughout, became white. Haemoglobin value rose to 78% by July 11.

He was sent home on July 20, to continue prednisone 20 mg. daily. Radiographs on September 23 showed "almost complete clearing".

## DIAGNOSIS

The association of bronchopneumonic shadowing with joint pain, the absence of eosinophilia in peripheral blood, the failure to establish a bacterial cause, the failure to respond to very large doses of penicillin and an average dose of erythromycin, and the rapid improvement under hormone therapy, seem to be an adequate basis for the diagnosis of collagen pneumonia. The multiple arthritis with some swelling (right wrist, knees, feet) which failed to respond to a fairly large dose of aspirin and which remained in the joints until hormone therapy was started and then cleared quickly, seems better termed rheumatoid arthritis than rheumatic fever.

## LITERATURE

Chancey<sup>1</sup> reports two cases of "rheumatic pneumonitis" in acute rheumatic fever. His review of the literature emphasizes the high mortality in this condition, and indicates that areas of rheumatic pneumonitis are often multiple and migratory. He states, "The histologic picture of rheumatic pneumonitis presents an angitis with endothelial proliferation, haemorrhage, necrosis and hyalinization of the arteries and capillaries of the lung. Aschoff bodies may be found in the lung tissue." His two patients ap-

pear to have been helped by intravenous ACTH.

Aronoff, Bywaters and Fearnley<sup>2</sup> quote several authors who have described lung lesions in rheumatoid arthritis. They searched their own considerable clinical material for evidence of pulmonary disease in 253 cases of rheumatoid arthritis. They failed to find a "specific lung lesion which could characteristically be asso-

#### CONCLUSION

The writer does not propose to review the entire literature. It is evident that pulmonary lesions have been described in rheumatic fever and in rheumatoid arthritis, and have been held to be due to the rheumatic diathesis. Some have remained unconvinced that these lesions exist. The present case, with its dramatic response to

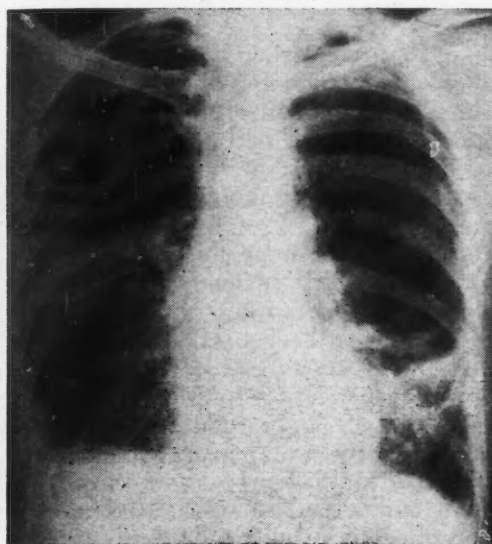
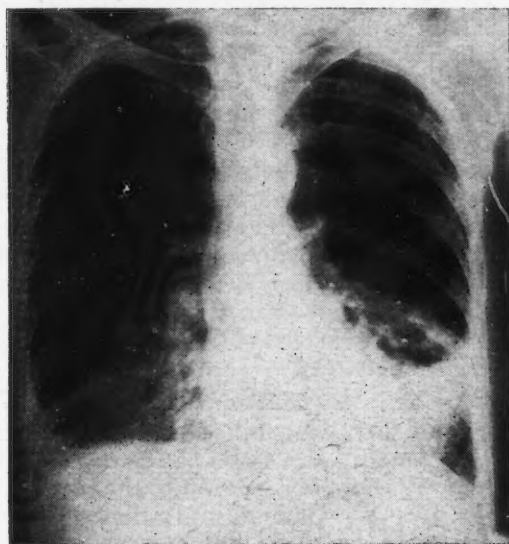


Fig. 1.—Chest radiograph on May 28. Fig. 2.—Chest radiograph on June 7.

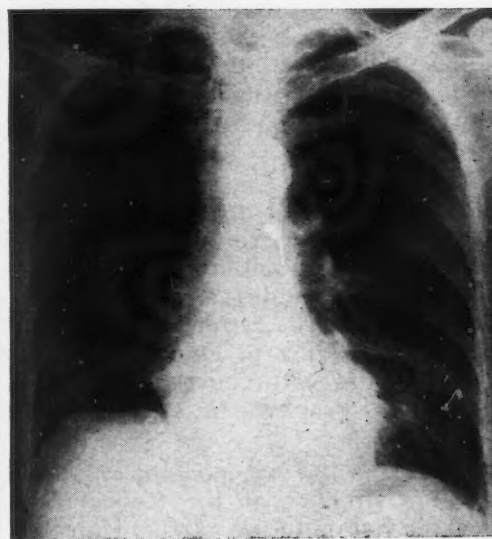
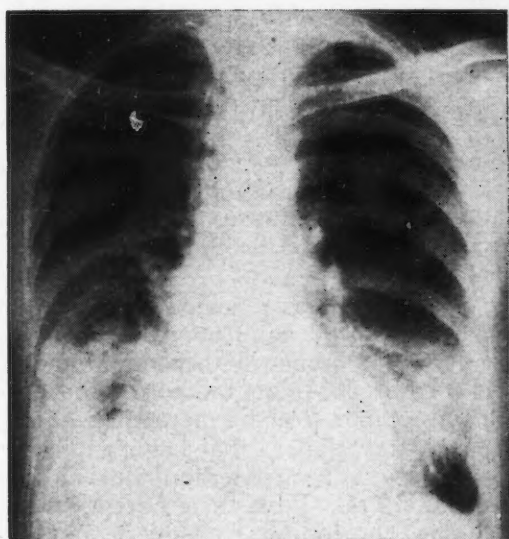


Fig. 3.—Chest radiograph on June 28, showing right pleural effusion. Fig. 4.—Radiograph on July 19, showing improvement.

ciated with rheumatoid arthritis." No example of "rheumatoid lung" was observed.

Tudor and Kling<sup>3</sup> record eight cases from the literature, and add a ninth in which a severe pneumonia developed in the course of rheumatic fever. All patients died. The pathology in these cases was that of acute exudative disease.

steroid therapy, would seem convincing evidence that there is in fact a rheumatic pneumonia of non-bacterial origin.

210 St. Clair Ave. W.

#### REFERENCES

1. CHANCEY, R. L.: *U.S. Armed Forces M. J.*, 4: 1129, 1953.
2. ARONOFF, A., BYWATERS, E. G. L. AND FEARNLEY, G. R.: *Brit. M. J.*, 2: 228, 1955.
3. TUDOR, R. B. AND KLING, R. R.: *Minnesota Med.*, 34: 437, 1951.



## Special Article

### RESEARCH ON THE DEVELOPMENT OF A POLIOMYELITIS VACCINE: TORONTO, 1950-1953

A. J. RHODES, M.D., F.R.C.P.(Edin.),\*  
Toronto

IN 1949, when Enders, Weller and Robbins of the Harvard Medical School reported that the Lansing strain of poliomyelitis virus multiplies in tissue cultures of human embryonic tissue, it immediately became possible to reopen the question of developing a poliomyelitis vaccine for human use. Earlier work of Kolmer, Brodie, and others had achieved some measure of success in this direction, but further progress was not possible because suspensions of virus could be prepared only from the central nervous system of monkeys. In view of the known occurrence of "paralytic accidents" following the use of anti-rabies vaccines prepared from central nervous tissue, it was essential to avoid such material in any vaccine to be used as a prophylactic in normal children. The work of Enders, Weller and Robbins, and that of the many other workers who quickly confirmed their original observations, pointed to a suitable alternative as a starting point for a vaccine, because the fluids of tissue cultures infected with poliomyelitis contained large quantities of virus suspended in a bland medium.

In as short a time as five years following the original discovery of Enders, a large-scale trial of a poliomyelitis vaccine pioneered by Dr. Jonas E. Salk, with the active support of the National Foundation for Infantile Paralysis, was undertaken in the United States, three Canadian provinces, and Finland. The results of this trial were satisfactory, according to Dr. T. Francis, Jr., who was entrusted with the task of evaluating the safety and prophylactic effect of the vaccine.<sup>1</sup>

The fact that most of the vaccine used in these trials was a joint product of the Connaught Medical Research Laboratories of the University of Toronto, and two U.S. drug houses, Eli Lilly and Parke Davis, is well-known. In an address in the fall of 1955 in Canada, Dr. Hart Van Riper, Medical Director of the National Foundation for Infantile Paralysis, stated: "... if the Connaught group had not so quickly worked out the technique for large-scale production of virus, we could not possibly have at hand today a practical vaccine for the prevention of paralytic poliomyelitis."<sup>2</sup>

It is the object of this paper to record briefly some details, not previously published, of the work in Toronto which led up to the production of this vaccine. The author, as a grantee of the National Foundation for Infantile Paralysis from 1947-1953, while on the staff of the Connaught Medical Research Laboratories, had the privilege of directing some of the work.

In 1950, preliminary studies on the tissue cultivation of poliomyelitis virus were begun at the Dufferin Division of the Connaught Medical Research Laboratories by Miss M. Chapman. These experiments served to confirm the original observations of Enders. At that time, human embryos were the source of tissue, and it became desirable to move the work to a laboratory closer to the downtown hospitals. Such an opportunity presented itself in February 1951, when the work was transferred to the Virus Research Department of the newly opened Hospital for Sick Children, where space was generously made available by Dr. T. G. H. Drake, Director of Research, Dr. W. L. Donohue, Director of Pathology, and Dr. T. E. Roy, Director of Bacteriology.

In The Hospital for Sick Children, a new research staff was appointed, consisting of Dr. A. E. Franklin, Dr. W. Wood, Mrs. D. Duncan, and Miss J. Thicke. With the collaboration of Dr. Douglas Cannell and other obstetricians, an adequate supply of human embryonic tissue was made available.

Almost from the first, poliomyelitis virus was readily cultivated by the "suspended cell" or Maitland technique. Most of our experiments at that time were carried out with Lansing (Type 2) virus, and tests for infectivity were made by the inoculation of mice. Earlier studies with Miss Eina M. Clark at the Connaught Medical Research Laboratories had provided the necessary background for interpreting the results of such tests.

In 1952, it was reported by Thicke *et al.*<sup>3</sup> that Lansing virus multiplied in "suspended-cell" cultures of human embryonic kidney as well as in mixtures of brain and cord; monkey testis was also suitable. Furthermore, it was reported in the same paper that a chemically defined nutrient medium (Medium 199) devised by Dr. Raymond C. Parker's group, which then included Dr. Joseph F. Morgan and Miss Helen Morton, at the Connaught Laboratories, was superior to the simple balanced saline solutions in common use at that time. The composition of Medium 199 had been published in 1950.<sup>4</sup>

In a second paper, also published in 1952, it was pointed out that infected culture systems used much less glucose than control uninfected cultures.<sup>5</sup> The third report, also published in 1952, stated that Medium 199 served as an excellent nutrient in roller tube cultures, in which fragments of monkey testis were employed.<sup>6</sup> When virus of all three types was added to

\*The Research Institute, The Hospital for Sick Children, Toronto.

these cultures, cytopathogenic (degenerative) changes rapidly occurred in the outgrowth of fibroblasts. Application to the field of vaccination was evident, because it was found that such tissue culture fluids when combined with oily "adjuvant", on inoculation in monkeys, promptly stimulated high levels of neutralizing antibody.

In 1953, Franklin *et al.* drew attention to the value of a tissue culture system consisting of minced human embryonic kidney suspended in Medium 199.<sup>7</sup> In these cultures, virus was liberated into the nutrient fluid continuously for almost three months. This observation led the authors to remark that "the stage has now been reached where experiments can be initiated to determine whether poliomyelitis virus will grow in containers considerably larger than those previously used."

In point of fact, several attempts to grow virus in larger containers than the usual small Erlenmeyer flasks were successful. In particular, both Kolle flasks and larger roller tubes holding about 20 ml. were used. In a companion paper, Duncan *et al.* reported that several tissues of rhesus monkeys also supported virus growth; cultures of monkey kidney and testis were especially suitable.<sup>8</sup>

All of the above results were reported, before publication, to Dr. Harry M. Weaver, then Director of Research of the National Foundation. In 1952 our group was urgently requested to undertake the production of poliomyelitis virus on a commercial scale. About this time, Dr. Jonas Salk had published a short report that poliomyelitis viruses grown in tissue culture were antigenic in monkeys and that formalin-treated culture fluids were likewise capable of stimulating antibody.<sup>9</sup> In 1953, Dr. Salk reported a preliminary series of inoculations of humans with a vaccine prepared from tissue culture fluids.<sup>10, 11</sup> Medium 199 was employed in the preparation of the virus incorporated in these vaccines.

From early January 1953, experiments on the large-scale production of virus were carried out in the Spadina Division of the Connaught Laboratories, in laboratories quickly and adequately prepared for the purpose. Trial was first made of large "Winchester-type" bottles with fragments of tissue embedded in a plasma clot; the bottles were rotated slowly. Virus yield was satisfactory, but the labour of preparation was too great. The main problem was to find a container which would hold a large volume of fluid, yet in a thin layer, so as not to "drown" the metabolizing tissue. On the recommendation of Dr. L. Farrell, Povitsky or diphtheria toxoid bottles were also tried, and were found very suitable; these bottles hold 500-750 ml. of fluid when placed on their side. The tissue culture system found most suitable was minced monkey kidney in Medium 199. The method finally developed for the growth of

all three types of virus in Povitsky bottles was published in 1953 by Farrell *et al.*,<sup>12</sup> and was presented at the Sixth International Congress of Microbiology in Rome in September 1953.<sup>13</sup>

In July 1953, the author assumed his present position, and the active direction of the program passed to Dr. R. D. Defries, Director of the Connaught Medical Research Laboratories. Under his direction, over 3,000 litres of virus were prepared and shipped to the laboratories of Eli Lilly and of Parke Davis in the U.S.A. for conversion into the "Salk vaccine" used in the 1954 field trials.<sup>1, 2, 14</sup>

The research program in Toronto, 1950-1953, was concerned therefore only with a means of mass-producing poliomyelitis-infected tissue culture fluids, and was carried out at the specific request of the National Foundation for Infantile Paralysis. In many ways, our part in the vaccination program was relatively simple. Subsequent developments have indicated that much the more difficult task is to inactivate the virus in the culture fluids with formaldehyde in such a way that the product consistently passes the prescribed tests for freedom from infectious particles. Two other aspects of the current vaccine urgently require modification. Thus, it is desirable to obviate the need for the use of fresh monkey tissue by growing the virus in a strain of cell that can be cultivated in the laboratory for a prolonged period. Furthermore, at least one of the strains of virus now incorporated in the vaccine has biological properties undesirable for inoculation in man.

It will be realized, therefore, that the work recorded here probably represents only the opening phase in the development of a practical poliomyelitis vaccine, and much research lies ahead, particularly in regard to the perfection of a method which will consistently and completely inactivate the virus without destroying antigenicity.

#### REFERENCES

1. FRANCIS, T. JR. *et al.*: *Am. J. Pub. Health Suppl.*, 45: 1, 1955.
2. VAN RIPER, H. E.: *Canad. J. Pub. Health*, 46: 425, 1955.
3. THICKE, J. C. *et al.*: *Canad. J. M. Sc.*, 30: 231, 1952.
4. MORGAN, J. F., MORTON, H. J. AND PARKER, R. C.: *Proc. Soc. Exper. Biol. & Med.*, 73: 1, 1950.
5. FRANKLIN, A. E. *et al.*: *Ibid.*, 79: 715, 1952.
6. WOOD, W. *et al.*: *Ibid.*, 81: 434, 1952.
7. FRANKLIN, A. E. *et al.*: *Canad. J. M. Sc.*, 31: 64, 1953.
8. DUNCAN, D. *et al.*: *Ibid.*, 31: 75, 1953.
9. SALK, J. E. *et al.*: *Fed. Proc.*, 11: 480, 1952.
10. SALK, J. E.: *J. A. M. A.*, 151: 1081, 1953.
11. *Idem*: *Pediatrics*, 12: 471, 1953.
12. FARRELL, L. N. *et al.*: *Canad. J. Pub. Health*, 44: 273, 1953.
13. RHODES, A. J.: *Proceedings of Sixth International Congress of Microbiology, Rome*, 3: Sez. viii, 171, 1953.
14. FARRELL, L. N. *et al.*: *Canad. J. Pub. Health*, 46: 265, 1955.



# The Canadian Medical Association Journal

*published twice a month by*

THE CANADIAN MEDICAL ASSOCIATION

Editor: S. S. B. GILDER, T.D., M.B., B.Sc.

Managing Editor: T. C. ROUTLEY, M.D., F.R.C.P.[C.]

Consultant Editor: H. E. MACDERMOT, M.D.,  
F.R.C.P.[C.]

Editorial Offices: 150 ST. GEORGE ST., TORONTO

(Information regarding contributions and advertising will  
be found on the second page following the reading material.)

## RETURN TO THE BIRTHPLACE

Last month the Canadian Medical Association, come to full maturity after 89 years, returned to its birthplace in Quebec City for its Annual Meeting. In the life of an individual, a pilgrimage to childhood haunts is apt to disappoint. The people have changed, the place is not so attractive as it used to be, and the atmosphere has rarely changed for the better. But these considerations apparently do not apply to institutions, for the visit to Quebec exceeded in charm and delight anything that ignorant strangers to the province might have expected. We must now include Quebec among the few cities which on closer inspection prove even more attractive than in anticipation, and we must give Quebec hospitality and organizational talent very high marks indeed.

It was an exciting week, partly because of its cross-cultural setting. Some things will live in the memory. The lovely view from the terrace of the Governor-General's summer residence on Monday evening, the pleasure of hearing His Excellency deliver with perfect timing a witty and penetrating after-dinner speech on Tuesday, the ovation for Dr. A. T. Bazin on Wednesday evening as he stood to receive the senior membership he so richly deserved and the standing ovation for the new president who has all our good wishes for the coming year, the simple dignity of the convocation ceremony at Laval—all these we will remember. Not all the evil intentions of the weather could harm this memorable meeting, though this uncontrollable variable did its best to interfere. It chilled and

dampened the spirits of the Executive Committee on Friday and Saturday, continued wet and windy through the parade of the 22nd Regiment on Sunday, relented a little on Monday, and then attempted to inflame the General Council on Tuesday with an unseasonable heat wave. From sleet on Friday we went to thunder and lightning during the Council dinner on Tuesday, though it is only fair to add that on the latter occasion the gift of tongues was added in a certain measure to the elemental disturbances without.



*Canadian Pacific Railway*

The new President, Dr. Renaud Lemieux, and  
Madame Lemieux

The continuing heat did not deter the hardy membership from turning out in force to the scientific program at the really remarkable School of Commerce. The scientific sessions were well attended, the commercial exhibits were well visited, and the scientific exhibition (extensive and of high quality) attracted a lot of attention. Thanks to the excellent work of the two interpreters, Miss Carrière and Miss Francœur, whose efficiency never flagged in spite of the heat, and of Colonel Wethey's stalwarts from the Royal Canadian Corps of Signals, who under Capt. Chisholm supplied the sound apparatus, the non-linguists were deprived of nothing. In close relationship to all this general

activity, our sister organizations ploughed their specialized furrows. The otolaryngologists went out and the neurologists came in, to be followed by the allergists and the rheumatologists. Finally the psychiatrists arrived to analyze the situation, and the pathologists had the last word as usual. It is good to see this dovetailing of meetings, an expression of the essential unity of medicine.

As usual our scientific program was augmented by celebrities from abroad. Our chief American guest was Dr. P. Robb McDonald of Philadelphia, preaching the prevention of blindness; from Britain came Professor McCance to give the first Tisdall Oration, and our old friend Sir Howard Florey; from France, we had Professor Lacassagne to give the Osler Oration on lung cancer and Dr. Raymond Garcin to talk on porphyria.

We believe that this year's meeting had a special significance, in the sense of breaking down barriers that have no place in the Canada of today. We think that many friendships were made between Quebec and other provinces through the sincere and helpful attitude of our indefatigable hosts. To the Quebec Division and the doctors of Quebec and their ladies, we can only say, "Thank you for a wonderful time."

---

### Editorial Comments

#### NOVOBIOCIN, A NEW ANTIBIOTIC

Since the advent of antimicrobial therapy for infections, physicians have been plagued by the facility with which most organisms develop bacterial resistance to antibiotics. To a certain degree, especially in the case of tuberculosis, this situation has been kept under control by the use of intermittent treatment schedules, the administration of antimicrobial agents in pairs, and the discovery of new antibiotic and chemotherapeutic agents. It seems clear, however, that our brilliant discoveries in the field of antimicrobial therapy have, to a certain extent, "upset the balance of nature"; and it has required all of our efforts in the three directions described above to keep ahead, or even abreast, of the microbe world.

Quite apart from tuberculosis, the most ubiquitous organism from the standpoint of bacterial resistance has been the staphylococcus. During the past five years, the penchant of this organism for becoming resistant to antimicrobial agents has been the subject of a large number of observations and articles in the medical litera-

ture. One frequently sees studies of cross-infection in hospital nurseries, in which the penicillin-resistant staphylococcus has been the offending agent; and not more than two years ago there appeared in the literature the first article on the occurrence of a new type of enteritis, which was later to be ascribed to the antibiotic-resistant staphylococcus. To a certain degree, this increasingly potent pathogen with its now greater virulence is being controlled by erythromycin. There is little doubt, however, that before long strains of staphylococci resistant to erythromycin will begin to rear their ugly heads. The discovery, therefore, of a new antibiotic which, for the time being at least, shows a high degree of potency against Gram-positive cocci is an important matter—sufficiently timely for the editors of *Antibiotic Medicine* to have devoted an entire issue (April 1956) to the new antibiotic, novobiocin.

As has been the case with most of the newly discovered antibiotics since penicillin, this newcomer is derived from a streptomyces—in this case *Streptomyces niveus*. The fungus was isolated from soil samples collected in Queens Village, New York. Exhaustive investigation, both *in vivo* and *in vitro*, appears to indicate that it is highly effective against most Gram-positive organisms and practically ineffectual against Gram-negative pathogens. Happily enough, the staphylococcus appeared to be highly sensitive to low concentrations of novobiocin, regardless of its sensitivity or resistance to other antimicrobials currently available. Tube-dilution *in vitro* sensitivity tests revealed a sensitivity of the Gram-positive organisms to 0.1 to 1.0 microgram. A comparative study with the disc method revealed large zones (10 to 18 mm.) of inhibition of the Gram-positive organisms, but no zone whatsoever with the Gram-negative bacteria. Clinically, a sharp fall of temperature and marked symptomatic improvement were found to occur in cases where the causative organisms, especially staphylococci, were susceptible to this antibiotic. It is of some importance to note that there is evidence that novobiocin, like erythromycin, is effective in micrococcal enterocolitis. Although laboratory studies have indicated that the *in vitro* activity of this antibiotic is markedly inhibited by human serum, probably because of its high degree of binding by serum albumin, the clinical results seem to indicate that its action in humans is not seriously affected by this interesting laboratory finding.

Novobiocin may be given orally, intramuscularly or intravenously. However, the latter two routes will apparently be required only infrequently, since novobiocin is rapidly absorbed following ingestion, and high serum concentrations are promptly attained in the majority of patients. Since, under normal circumstances, it does not appear in the cerebrospinal fluid, further studies are indicated, to determine whether intrathecal therapy will be required in patients



with meningitis, or whether, as is usually the case, the blood-brain barrier to this antibiotic will be lowered in the presence of meningeal inflammation.

The antibiotic appears in significant concentrations in pleural and ascitic fluid after an initial lag period; and high urinary concentrations are achieved following oral administration, also after an initial delay. The established dosage appears to be 1.0 to 2.0 g. daily, although this will probably be found to vary with the severity of the infection. As has been the case with most other antibiotics, novobiocin is bacteriostatic in low concentration and bactericidal in high concentration.

In the present early stage of investigation, no serious toxic effects have been reported. The most common side-effect is an allergic dermatitis, and, paradoxically, this may be of some value in preventing the indiscriminate use of this antimicrobial agent. So far, the skin eruptions noted have disappeared quickly when the drug has been discontinued. More searching investigations have disclosed cases of mild neutropenia, eosinophilia, elevated serum bilirubin and transient erythema in patients who have been treated with this drug. Mild nausea has also been noted, but no evidence of moniliasis has as yet been reported.

Despite all the optimistic reports that usually attend the discovery of a new drug of any type, it appears that from the standpoint of bacterial resistance the "writing on the wall" has already appeared in the case of novobiocin. In one very careful study<sup>1</sup> appearing in the above-mentioned publication, "evidence of increasing resistance to novobiocin was noted during the course of treatment in strains of certain species, notably of staphylococci and *Streptococcus viridans*". It appears, therefore, that the search for new antibiotics will have to continue indefinitely or at least for the foreseeable future. S. J. SHANE

#### REFERENCE

1. NICHOLS, R. L. AND FINLAND, M.: *Antibiotic Med.*, 2: 241, 1956.

#### THE MANAGEMENT OF PLUMBISM

Lead poisoning, first reported by Hippocrates nearly 2,500 years ago, still remains one of the most common industrial diseases. Nevertheless, since the turn of the century considerable progress has been made in the early recognition of the condition and also in measures designed to control exposure to lead.

Unlike many other toxic substances encountered in industry, lead is a cumulative poison. A proportion of a small dose administered daily is retained by the body and stored in the bony trabeculae in the form of insoluble lead triphosphate; the remainder, if it has been ingested, is excreted in the faeces. By inhalation, however, lead is easily absorbed from the

respiratory tract and toxic symptoms are manifest more rapidly when entrance is gained to the body by this route. Absorption through the skin only occurs with organic compounds of lead, such as lead tetraethyl, which is used as an anti-knock compound in gasoline.

Three classical types of plumbism are usually described; alimentary, neuromuscular and encephalopathic. In each instance the condition is preceded by certain general symptoms which include debility, joint and muscle pains, headache, anorexia, constipation, tremors of hands, pallor and in women, abortion and irregular menstruation. A blue line near the margin of the gums has long been recognized as pathognomonic of lead exposure. It is due to hydrogen sulphide from the tartar forming insoluble lead sulphide; this sign is not constant and is more frequently elicited in association with carious teeth. The blue line is situated in the deeper layer of the mucous membrane and thus cannot be removed by brushing; when viewed under a hand lens the line is seen to be continuous.

Lead colic is the usual form of the disease. The condition is never fatal and the colicky pains of generalized distribution are relieved by pressure on the abdomen. The patient is usually constipated and the pains are probably due to enterospasm. The abdominal musculature is tender to palpation between the spasms but the associated bradycardia and apyrexia are of assistance in excluding an acute abdominal condition. Symptoms resolve spontaneously in a few days, only to be precipitated again by further lead exposure.

The onset in the neuromuscular type is more insidious, the chief complaint being muscle weakness. Fatigue plays an important part in determining the site of the palsy and thus in right-handed persons the extensors of the wrist and finger of this hand are usually initially involved. In occupations where other muscle groups are more regularly exercised paresis is first noticed in these groups. Circulating lead combines with excess lactic acid from the muscle to form lead lactate which is then deposited in the form of lead phosphate on the surface of the muscle cell. Muscle permeability is affected by this film of lead phosphate and, with continuing intoxication, lead may ascend the motor nerve fibres and reach the anterior horn cells. Muscle cramps frequently precede the palsy and a fine digital and lingual tremor are usually evident. In later stages of the disease the deltoid, biceps and brachialis anticus may be involved and, more rarely, wasting of the small muscles of the hand and also foot drop may occur. Sensation is unimpaired although the patient may complain of previous tingling sensation in the limbs together with joint and muscle pains.

Encephalopathy was reported by earlier writers but is fortunately seldom seen today, because of more careful control of industrial pro-

cesses. It is usually fatal and follows rapid absorption of large quantities of organic lead compounds which are selectively picked up by the central nervous system. There are signs of cerebral irritation which pass rapidly on to coma. Papilloedema is invariably present and epileptiform convulsions, acute mania and delirium have also been recorded.

The treatment of chronic lead poisoning may be considered in three phases—to stop the absorption of lead, to overcome the systemic effects and finally to remove the metal from the sites of toxic action in the body. In industrial workers the source can usually be determined but if the disease has a non-occupational origin the problem may be more difficult. Lead water pipes, nursery furniture and toys are strongly suspect in the latter instance. It has been demonstrated that lead and calcium are metabolized in a closely similar manner and factors producing calcium deposition in the bones also encourage removal of lead from the circulation and subsequent storage in the bones. Thus in the treatment of active symptoms circulating lead may be fixed in the bones by administration of vitamin D, together with a high calcium and high phosphate intake. Rapid relief is usually obtained by slow intravenous administration of 15 c.c. of 5% calcium chloride. Antispasmodic drugs have a definite value in controlling the symptoms in lead colic; amyl nitrite inhalation and atropine are recommended for this purpose. Saline aperients are also generally prescribed.

Many authorities are of the opinion that once the acute symptoms have resolved, an attempt should be made to slowly mobilize the stored lead and encourage its removal from the body. There are also those who feel that "deleading" should not be undertaken since it may produce an acute exacerbation of symptoms when the metal is released into the circulation again. Mobilization and subsequent elimination may be achieved by the careful administration of iodides, ammonium chloride and a low-calcium diet.

The recent introduction of the chelating agent Edathamil calcium disodium ( $\text{Na}_2\text{CaEDTA}$ ) into the therapy of metal intoxication has undoubtedly brought new light to bear on the treatment of plumbism. In the past, various therapeutic agents were devised to combine with the metal to produce a complex which could then be excreted by the body, for example dimercaprol and sodium disulphonate pyrocatechol. In the case of lead, however, the complexes so formed proved to be either unstable or too toxic.

Rieders<sup>2</sup> and others have reported on the treatment of nine cases of chronic lead poisoning with Edathamil calcium disodium. They have demonstrated that parenteral administration of this drug increased the urinary excretion of lead up to a hundredfold. In addition there was a dramatic improvement in their patients' symptoms. Nausea and vomiting, for instance, disap-

peared within 36 hours, abdominal and muscle pains in two and a half days, and numbness of the extremities was completely relieved in 22 days. A further advantage was the fact that the treatment, consisting of a weekly intravenous injection of  $\text{Na}_2\text{CaEDTA}$ , may be provided on an outpatient basis. The authors suggest that it should now be possible with EDTA to almost completely "delead" the soft tissues by periodic removal of lead accumulated in the course of metabolic turnover of skeletal stores. J.D.M.

#### REFERENCES

1. Canada, Department of National Health and Welfare, Industrial Health Division: Guide to the Diagnosis of Occupational Diseases, King's Printer, Ottawa, 1949, p. 206.
2. RIEDERS, F., DUNNINGTON, W. G. AND BRIEGER, H.: *Indust. Med.*, 24: 195, 1955.
3. OSOL, A. *et al.*, ed.: The Dispensatory of the United States of America, 25th ed., J. B. Lippincott Company, Philadelphia, 1955, p. 746.

#### CARCINOIDS AND SEROTONIN

Carcinoids are tumours which arise from the argentaffin cells of the gastrointestinal tract. They are therefore also known as argentaffinomas. They are commonly found in the appendix where they are almost always benign. Less frequently they arise elsewhere in the large bowel, in the small bowel or in the stomach. In these latter sites they are more likely to develop low-grade malignancy with local invasion and metastases to the lymph nodes and liver. In 1954, Thorson, Björck, Björkman and Waldenström<sup>1</sup> of Sweden described the clinical syndrome of malignant carcinoid of the small intestine with metastases to the liver. This consisted of attacks of cutaneous flushing with patchy cyanosis and respiratory distress, valvular disease of the right side of the heart, and chronic diarrhoea. They suggested that the syndrome might be due to the production and subsequent release of serotonin by the tumour. Since this suggestion was made, more than 50 cases of malignant carcinoid have been reported from Europe and America. These have confirmed the original description of the syndrome and its pathogenesis.<sup>2-5</sup>

The history of serotonin has been recently reviewed by Page.<sup>6</sup> Serotonin is the name given to the vasoconstrictor principle in clotted blood. It is present preformed in platelets and is liberated during the process of clotting. It was isolated and crystallized in 1948 and shown to be 5-hydroxytryptamine. For the last quarter-century Erspamer<sup>7</sup> in Italy had been studying the properties of a substance which he believed to originate from the argentaffin cells of the gastrointestinal tract. He named the substance enteramine. In 1952 he was able to show that enteramine was 5-hydroxytryptamine. Since the realization that enteramine and serotonin are the



same substance and the synthesis of 5-hydroxytryptamine, progress has been rapid. The applications of this new knowledge are wide indeed. Not only is serotonin present in intestinal cells and platelets but it is also a normal constituent of brain and other nervous tissue. This aspect is being investigated intensively and it has been shown that reserpine<sup>8,9</sup> causes the brain to release its store of serotonin. This mechanism and its possible function are not understood.

The large number of cases of malignant argentaffinoma or carcinoid reported in the last two years has established it as a readily recognizable metabolic disorder. Carcinoids have been shown to yield large amounts of serotonin and the attacks of flushing, dyspnoea and diarrhoea are not unlike the picture produced by an injection of serotonin. The development of valvular lesions of the right heart and the production of pulmonary hypertension are fascinating features. They have been attributed to the exposure of the right side of the heart to large quantities of vasoconstrictor substance coming from the liver. This substance is destroyed by the lungs and hence does not affect the left side of the heart. Rapid destruction of free serotonin in plasma probably accounts for the difficulties encountered in correlating blood levels with attacks of flushing or progression of the disease. On the other hand, there is good correlation between urinary excretion of its breakdown product, 5-hydroxyindolacetic acid, the severity of the patient's condition and size of the tumour mass.<sup>4</sup> Simple qualitative tests have been developed which permit separation of urines containing small amounts of 5-hydroxyindolacetic acid from those with the abnormally high levels found only in the presence of malignant carcinoids.<sup>12,13</sup> These tests can be performed by any hospital laboratory.

The treatment of this condition is still surgical and symptomatic. Several drugs, considered to be serotonin antagonists, have been tried without success.

Advances in the basic knowledge of this group of substances has been rapid in recent years and it is reasonable to expect further clinical applications in the near future.

GUY E. JORON

#### REFERENCES

1. THORSON, A. *et al.*: *Am. Heart J.*, 47: 795, 1954.
2. WALDENSTROM, J. AND LJUNGBERG, E.: *Acta med. scandinav.*, 52: 293, 1955.
3. SNOW, P. J. O. *et al.*: *Lancet*, 2: 1004, 1955.
4. MACFARLANE, P. S. *et al.*: *Scot. M. J.*, 1: 148, 1956.
5. SJOERDSMA, A., WEISSBACH, H. AND UDENFRIEND, S.: *Am. J. Med.*, 28: 520, 1956.
6. PAGE, I. H.: *Physiol. Rev.*, 34: 563, 1954.
7. ERSPAMER, V.: *Ibid.*, 6: 425, 1954.
8. BRODIE, B. B., PLETSCHER, A. AND SHORE, P. A.: *Science*, 122: 968, 1955.
9. PAASONEN, M. K. AND VOGT, M.: *J. Physiol.*, 131: 617, 1956.
10. SJOERDSMA, A., WEISSBACH, H. AND UDENFRIEND, S.: *J. A. M. A.*, 159: 397, 1955.
11. HANSON, A. AND SERIN, F.: *Lancet*, 2: 1359, 1955.

#### PRESENT STATUS OF WHOOPING COUGH

There are still numbers of infants and children with whooping cough. In the majority of cases these are children who have not been vaccinated, yet there are still those, few in number, who have received vaccine and some who have actually received yearly fortifying doses, who have developed bacteriologically and clinically proven whooping cough. It has never been claimed that pertussis vaccine was any more than 80% effective in the creation of active immunity, although in recent years there has been definite improvement in the choice of strains of *H. pertussis* phase I, used in the production of vaccine for active immunization. Most of the vaccines produced by different laboratories are combined with diphtheria and tetanus toxoid. Some manufacturers produce fluid toxoids with killed pertussis vaccines and others alum precipitated toxoid vaccines D.P.T. as well as aluminium phosphate adsorbed D.P.T. toxoid vaccines. There have been claims in recent years that the latter preparation produces a greater antibody response than other preparations. There is still room for improving the antigenicity of vaccines for active immunity against whooping cough.

#### Treatment

There have not been many, if any, advances made in the treatment of whooping cough since the excellent work of Kohn. At present, severely ill patients with whooping cough are treated as follows:

1. Oxygen therapy;
2. Resuscitation when necessary by manual and artificial means (suction to maintain clear airway);
3. Frequent small fluid meals with fluids at body temperature;
4. Immune anti-pertussis human serum in repeated doses or hyperimmune rabbit serum;
5. Special constant nursing attention when severely ill;
6. Antibiotics such as adequate doses of chloramphenicol, Achromycin or penicillin.
7. Bronchoscopic suction for atelectasis in selected cases.

Whooping cough is still a problem and until we have better antigens in vaccines for active immunity, the present constant rate of cases will continue. It is gratifying, however, to note that active immunization is now very extensively used and unquestionably, after 20 years of trial, has at last convinced the medical world that a great reduction in this disease has been and will be accomplished by active immunization and the use of fortifying doses.

NELLES SILVERTHORNE

## Medical News in brief

### ADDICTION TO METHYLATED SPIRIT

Many persons share the belief that addiction to methylated spirit or to other alcoholic beverages usually considered undrinkable presents a difficult problem in rehabilitation. MacDougall and MacAulay of Glasgow (*Lancet*, 1: 495, 1956) explain in a recent paper that they have recently had cause to amend this view. During the last year they have come to believe that sustained recovery is possible in some of these cases, and at the present moment they have three persons under their care with periods of three to seven months' sobriety behind them. They point out that addiction to methylated spirit or surgical spirit or other commercial products is usually a secondary occurrence in patients already addicted to the usual alcoholic drinks, who are driven by economic factors to take these substitutes. As regards treatment, they warn against the use of disulfiram (Antabuse) which may lead to the liberation of a dangerous amount of formic acid in the blood. Individual psychotherapy and group therapy provided by membership of Alcoholics Anonymous, together with hospital routine, are the most valuable therapeutic weapons.

### SYNTHETIC OXYTOCIN

Two papers recently appeared in the *British Medical Journal* (1: 1133 and 1136, 1956) on trials of a new synthetic oxytocin (oxytocic hormone of posterior pituitary). In the first a group of workers at University College, London, assayed the new synthetic drug, called Syntocinon (prepared in Switzerland) by three methods on human subjects: (1) by action on the corpus and cervix uteri of patients undergoing therapeutic abortion; (2) by action on the uterus in labour where treatment for inertia was required; (3) by action upon the uterus of patients on the second and third days after delivery. The second trial was on 31 patients near term or in labour in Liverpool hospitals. Both papers show that the synthetic product differs in no way therapeutically from the purified preparation of the natural substance.

### TOXOPLASMOSIS IN MAN AND SWINE

Weinman and Chandler of New Haven, Connecticut, (*J.A.M.A.*, 161: 229, 1956) bring forward evidence to suggest that toxoplasma infection may be acquired in man by the eating of infected pork. They point out that toxoplasmosis is now considered to be a very common infection in man, although in most cases it produces no symptoms or signs. Skin tests and serological studies, however, have shown that beyond the age of five there is a progressive increase in the incidence of infected individuals; it is not widely known perhaps that peak incidences in the U.S.A. range from 30-70% of the population in middle age.

The authors' investigations have shown that pigs may become infected with toxoplasma by cannibalism or by feeding on infected rodents, and that they are natural

carriers of toxoplasma. The organisms are likely viable when the pork arrives in the kitchen, and toxoplasma survives the gastric digestion for a period equal to its average stay in the human stomach. It is therefore likely that human subjects eating undercooked pork are running a risk of contracting toxoplasma infection, though this is not suggested as the only route of spread of infection.

### THYROID FUNCTION IN ACUTE RHEUMATISM

From Gorki, Russia, Andreeva and his colleagues report an investigation of 62 cases of acute rheumatism. They studied thyroid function by radioactive iodine uptake in these cases during exacerbations and latent intervals, and conclude as a result of their studies that thyroid function is almost invariably increased in active phases of acute rheumatism, but normal in inactive periods. These results were obtained regardless of the age of the patient or of cardiovascular disturbances. They recommend radioactive iodine tests as a guide to activity in acute rheumatism—*Klinitscheskaya Meditsina*, March 1956, page 30.

### THORACIC DUCT EXTIRPATION

Maurer of Cincinnati (*J.A.M.A.*, 161: 135, 1956) reports what he thinks is the first case of complete extirpation of the thoracic duct for a primary benign tumour which was causing spontaneous chylothorax. There was temporary oedema in the upper abdominal area which disappeared in about five days. The patient has remained fit for two years after operation, and it is therefore considered proved that extirpation of the thoracic duct is a practicable procedure.

### A COUNTER-PRESSURE GARMENT FOR POSTURAL HYPOTENSION

Sieker and his colleagues of Durham, North Carolina, (*J.A.M.A.*, 161: 132, 1956) describe a new type of elastic counter-pressure garment for use in cases of postural hypotension. This distressing condition may prove extremely disabling, and treatment with vasoconstrictor drugs, attempts at increasing blood volume, and the use of elastic stockings and abdominal binders has proved disappointing. The authors have experimented with two types of garment designed to apply counter-pressure over the body from the waist down in 10 patients with severe postural hypotension; in two cases the hypotension followed bilateral sympathectomy, in the others it was either idiopathic or associated with diabetes mellitus. One patient could not sit up without fainting and six others had frequent fainting attacks. Of the two types of garment, an air-filled suit proved more effective than an elastic suit. Blood pressure rose and cardiac output was increased when the suit was worn. Four patients were able to return to part-time work, found the suit both practical and comfortable, and were able to do work entailing standing for long periods.

(Continued on advertising page 44)



AN ADDRESS TO THE CANADIAN  
MEDICAL ASSOCIATION\*

HIS EXCELLENCY,  
THE RT. HON. VINCENT MASSEY,†  
Ottawa, Canada

I AM HAPPY to be with you on this occasion, speaking personally. Officially the matter cannot be stated so simply. As a privileged honorary member of the medical profession, I cannot shrink from my duties. And yet I am tempted to shrink, for I have a formidable task this evening—to express, as far as I can, some intelligent and intelligible views on the problems of the profession. These problems seem to be becoming daily less intelligible, except to the superlatively intelligent—and I dare not include myself in such a category.

Durant cette réunion nationale des membres de la profession médicale, des canadiens d'expression française et anglaise se rencontrent pour discuter des problèmes communs.

En plus des deux langues qui y sont entendues il s'y parle un troisième langage avec lequel vous êtes tous familiers et c'est celui qu'a créé votre contact avec la médecine.

Des réunions comme celle-ci rassemblent des citoyens qui ont en commun des intérêts, des problèmes, des responsabilités; elles permettent aussi à chacun d'augmenter ses connaissances personnelles et apportent, par là, une importante contribution à notre unité nationale.

I have spoken of problems related to the medical profession. One current dilemma of which I am thinking is charmingly described by one who is not of our fraternity, but who thinks she knows something about us—Miss Phyllis McGinley, known to the addicts of *The New Yorker*, of whom I am happy to be one. I quote a few lines† from her verses:

"When I was young and full of rhymes  
And all my days were salady,  
Almost I could enjoy the times  
I caught some current malady.

"But now, when vapours dog me,  
What solace do I find?  
My cronies can't endure me,  
And, though I ail, assure me  
It's all a state of mind.

"It's psychosomatic, now, psychosomatic.  
Whatever you suffer is psychosomatic.

Angina,  
Arthritis,  
Abdominal pain—  
They're nothing but symptoms of marital strain.

"That sprain of the ankle while waxing the floors—  
You did it on purpose to get out of chores.

\*Presented at the 89th Annual Meeting, Château Frontenac, Quebec, June 12, 1956.  
†Governor-General of Canada.

‡Copr. 1948 The New Yorker Magazine, Inc.

Nephritis,  
Neuritis,

A case of the ague?  
You're just giving in to frustrations that plague you.

"You long to be coddled, beloved, acclaimed,  
So you caught the sniffles.  
And aren't you ashamed?  
And maybe they're right: But I sob through my wheezes,  
"They've taken the fun out of having diseases".

To the layman it would appear that the medical profession has really made a full circle since the stately academic days when (if I am rightly informed) the philosophic physician, after casting a learned eye over the sick, might suggest certain measures to be taken by others but, secure in the realm of pure reason, would not himself touch the patient.

In the course of the centuries, as we all know, methods improved, doctors became less ethereal and more human, scientific knowledge increased and by the nineteenth century medicine with surgery emerged and assumed a most honourable place among the learned professions. Until the present century, however, I think it is safe to say that, with medical science at a relatively elementary stage, the art of healing was practised with a surprising degree of empiricism, and, one must add, with surprising success.

In the last two or three generations—can we think of them as a third phase?—there have been changes so sensational as to astonish even the layman. First, the tremendous increase in the amount of scientific knowledge directly or indirectly applicable to medicine and surgery. I do not know, it is not for me to say, whether these advances have shown more breadth than depth. It is, however, clear to all of us that the doctor has now penetrated to every corner and cranny of our physical being. It is superfluous to exhort the patient to tell his doctor everything. How can he possibly hope to conceal anything from him?

It is most, of course, from the increase of anatomical and physiological knowledge alone that the doctor has profited. The advance of technical science has supplied him with the most astounding battery of instruments, tools and machines for examining, measuring, weighing, analyzing and testing in every conceivable fashion. The old-fashioned patient who looked forward to a quiet chat with his old-fashioned doctor now finds himself spirited off and conveyed through a strange underworld of white enamel, white coats and white lights, a world in which his role is chiefly passive and his posture almost invariably horizontal. The ordeal over, he sees his doctor, who asks him practically nothing—but who almost certainly does not tell him everything.

Seriously, it looks as if all things are now possible, or soon it will be. There is nothing that the doctor cannot see, and with x-rays, cobalt bombs, and "wonder drugs", running re-

pairs to the human frame and the skilful insertion of spare parts, almost nothing that they cannot do. Jokes at the expense of the medical profession are with us now, as ever. But this is increasingly, it seems to me, a tribute to their immense power and prestige.

And yet the most alert and thoughtful of your profession today turn their minds more and more to what may follow fresh successes. It is not that changing conditions of life bring unexpected problems; it is not that new diseases or newly identified diseases crowd in on the old. It is, rather, that your very achievements give rise to new questions. The very extent of your knowledge reveals to you mysterious forces hitherto unknown.

It is hardly necessary for me to explain to this audience what I have in mind. The increase of knowledge, the multiplication of techniques, have outstripped the capacity of the single individual. We are in the hands of the specialist and the team. I heard recently the comment of a man with small children: "We have no doctor; we have five specialists." His lament was that when he needed simple but sound advice for an unclassified ailment he did not know where to turn. A parallel predicament is that of the patient in the hospital, catered to, and magnificently and intricately, by specialists, technicians, dietitians, interns, students in training, nurses, nursing assistants and nurse's aides, and, if need be, psychologists, psychiatrists and therapeutic experts, but who rarely sees his doctor and who cannot lay claim to any single angel in white as *his* nurse. He is treated and ably treated, by what might be called a medical task-force.

Would I go back to the old days of the overworked nurse in the small nursing home? No, indeed—there is no going back. Knowledge compels as well as invites. But I know that I only repeat a question asked by many here when I wonder if the wealth of our scientific knowledge, our technical equipment, our valuable and essential organization are not somehow threatening to obscure the personal needs of the man or woman who is sick and in trouble.

And, as if to underline this problem, there comes the new awareness of the mysteries of medicine which has, I believe, been current since the World War. It began with shell-shock; it has been hovering about ever since, under various names. Now it is really in the open. "It's psychosomatic, now, psychosomatic, whatever you suffer is psychosomatic . . . your ills today are mental, and likely all your fault." So runs the comment from which I have quoted. Well may the patient say "They've taken the fun out of having diseases." But what about the doctor? No sooner has he perfected his streamlined hospital, complete with the latest things in rays and bombs and labs, with a specialist in everything on call, than he is made to feel that sometimes

he is encountering forces mysterious to him and defying his control.

They have, indeed, taken the fun out of curing diseases. I recall a story of a doctor called on to treat a woman who had suffered untold misery through the chaos and disaster of Europe in the last war. He treated her for one malady, successfully. She promptly was visited by a second more serious one. Both were what I think the profession calls "organic". The doctor, a European highly skilled and most sympathetic, remarked quietly, "How can you blame her for running away from all she had suffered?"

This may well be just a legend for the layman; but I believe it does suggest a well-known truth. Every good doctor has always recognized that he must meet his patient as a whole person. It was hailed as a triumph of the recent past, that mental illness was recognized and treated as an illness. But the latest step—the recognition and treatment of physical illness as something for which the patient is somehow to blame—is new indeed—or is it very old?

Does this current understanding of disease merely present the medical profession with a new set of problems to be classified and handed over to researchers for solution? Or does it invite you to look again at the whole of society and at the place of the profession in society.

These are rhetorical questions. I know that colleges of medicine, medical associations and many thoughtful and able doctors are pondering these matters and dealing with them in a manner more profound, if somewhat less sprightly, than that of my friend Miss McGinley. I know that the perplexity of the layman—and occasionally, I suppose, even of the physician—at some modern procedures has not escaped them.

It is certainly not my purpose to offer any suggestions. I am happy, most happy, to be on the sidelines, and to watch the medical profession constantly finding new and greater opportunities of service. I would like simply to comment on two tendencies which are to be welcomed.

One of these is typified by the presence here today of the Federation of Canadian Medical Women as a group within the Canadian Medical Association. I know well the trials of the women who first determined to qualify themselves for this exacting profession. It is a great pleasure to congratulate their successors and to assume from the pleasant relationship which appears today that the citadel is successfully stormed, and the forces reconciled. But I must add, it is an even greater pleasure to reflect on the special contribution that women doctors can make. "Women," we hear, "are always so personal." Let us thank Heaven for that. Please go on being personal in a profession and in an age when, as it seems to me, we are in constant danger of losing the person. I do not doubt the knowledge and skill of the women members of the pro-



fession; of that we can be sure. I am sure, also, that you may always associate with your professional ability the special qualities of sympathy and compassion which come easily and naturally to women in whatever work they do.

The second tendency which I observe with unmixed pleasure is a renewed attention to the general education of those who enter the profession of medicine. For some years now I have been aware that, in spite of the ever-increasing mass of scientific and medical knowledge which must be mastered, the profession is reminding itself more and more earnestly that the good doctor must be an educated man in the most universal sense of the word. We all know that the profession reached its present honourable estate when educated men joined its ranks and proved that their education made them better doctors as well as better men. But today we stagger under an increasing load of knowledge which—inadequately used—may bewilder as well as illuminate. Every profession today is in danger of having its intellectual life narrowed, its imagination stifled, by the weight of professionalism. Doctors above all have become aware of the danger; and members of the profession are asserting increasingly that, although some experience of liberal education does not make a man a good doctor, he cannot be a good doctor without it.

Surely this re-examination of the doctor and of medical professionalism is timely. When you are faced with the realization that while you must deal always with the whole man, science, so far, has encompassed only a part, and perhaps not the most important part—surely that is the time, not to lay aside science, but to recall that there are more ways than one to a knowledge of human life, of human character, of the human person. I was interested to learn of the anatomy professor who used in his lectures slides of Michaelangelo's drawings of the human body. Here he paid a kind of practical tribute to the oneness of science and art. This is perhaps a symbol of your recognition that the doctor who deals (by special techniques and with expert knowledge) with the whole man, must himself be a whole man. And he can achieve that wholeness only through a generous education, however it is acquired. He must have his imagination inspired and his mind liberalized by the broadest and most vigorous training before he can be allowed to subject himself to the profound and relentless discipline of the medical sciences.

One thing more. The doctor today must not only encounter baffling problems. He is burdened with the grave responsibility of applying the most subtle and drastic treatments to patients who are quite incapable of understanding, let alone of criticizing, what he is doing. His moral responsibility is heavy indeed. It is not enough to say that a good man will be a responsible doctor. The man who is placed in this position

of tremendous trust must have his moral instincts developed, refined and strengthened by all that intellectual training can do. Moral impulses are not enough. They must grow into sound, considered, rational moral principles.

This I take to be the most difficult question facing the medical profession today. How can you draw to your ranks men and women of the highest intellect, of the soundest character? How can you find among them the sympathy needed by those who meet their fellow men in moments of anxiety and despair, and the qualities essential to those who must use science (and not be used by it) in the practice of one of the greatest of the arts? And, having found such persons, how can you, in the few short years of their training, cultivate the mind and the imagination and the character without neglecting the essential scientific and technical preparation?

I have raised these questions as a layman, with a layman's diffidence—but with the concern that all of us must feel for a matter which affects so closely human happiness and the well-being of society. I know that the whole matter is a subject of serious and anxious consideration to medical associations and medical faculties. I have read, and have been enlightened by, articles which deal with this question in terms of the broadest human sympathy and social concern. It is not, indeed, for me to put questions and demand answers on an issue which is in the best of hands. It is rather my privilege to say how deeply I am impressed by the weight of your responsibilities and by the courage and energy with which you meet them and to wish you well in all your deliberations.

---

#### CLINICAL AND HEMODYNAMIC STUDIES OF TRICUSPID STENOSIS

In a study by Yu *et al.* (Circulation, 13: 680, 1956), five patients with tricuspid stenosis accompanying mitral stenosis were investigated.

Distinct findings on physical examination, electrocardiography and x-ray examination suggested the diagnosis, e.g. (1) a diastolic rumbling murmur in the tricuspid area, accentuated by inspiration; (2) prominent "a" wave in the jugular pulse; (3) "P pulmonale" waves in the electrocardiogram; (4) absence of signs of marked pulmonary hypertension or of right ventricular hypertrophy, although the patient was markedly disabled; and (5) disproportionate right atrial enlargement by fluoroscopy. The diagnosis is confirmed by a significant diastolic pressure gradient across the tricuspid valve at rest and during exercise. In a patient with combined mitral and tricuspid stenosis, the expected improvement may not occur unless both mitral and tricuspid valves are fractured. The concept of true tricuspid stenosis and "functional tricuspid stenosis" was introduced and a one-stage operative technique for both mitral and tricuspid valvuloplasty is described. With an increased awareness of its existence, more cases will be correctly diagnosed and benefited by proper surgical treatment.

## THE EIGHTY-NINTH ANNUAL MEETING

### ANNUAL GENERAL MEETING

The Annual General Meeting of the Canadian Medical Association was held in the ballroom of the Château Frontenac on the evening of Wednesday, June 13. The invocation was given by the new Primate of Canada and Archbishop of Quebec, Monsignor Maurice Roy. The President of the Association, Dr. T. C. Routley, welcomed the company to the 89th Annual General Meeting, mentioning that this was the sixth meeting that had been held in Quebec City, and expressing his gratitude and thanks to Dr. and Madame Lemieux and their committee members for the smoothness of the organization. He also thanked the citizens of Quebec for their unfailing courtesy and kindness to guests. He stressed once more the great chance which members of the medical profession have to contribute to the unity and strength of Canada. Fraternal delegates from other associations were then called upon to give a message to the meeting. Dr. R. A. McCance of Cambridge, England, brought greetings from the British Medical Association and urged members of the C.M.A. to come to the Edinburgh meeting in 1959. He said that it would be impossible to promise warm weather in Edinburgh at that time, but he would promise them a very warm welcome. Dr. P. R. McDonald of Philadelphia brought greetings from the American Medical Association, and Dr. Roma Amyot brought greetings from l'Association des Médecins de Langue Française du Canada, pointing out that both associations had started in Quebec and that both associations have the same goal, fostering of security and wellbeing of the people of Canada.

Senior members were then introduced. Of the nine due for conferment of senior membership, some six were actually present to receive their certificates of membership: Dr. E. R. Hicks of Cumberland, B.C.; Dr. J. E. Bloomer of Moose Jaw, Sask.; Dr. D. A. Graham of Toronto; Dr. A. T. Bazin of Montreal; Dr.



Canadian Pacific Railway

Dr. Roma Amyot brings greetings from l'Association des Médecins de Langue Française du Canada to the Canadian Medical Association.

J.-L. Petitclerc of Quebec; Dr. A. M. Sormany of Edmundston, New Brunswick. A special ovation was given to Dr. Bazin, whose name is so closely associated with the C.M.A. and who actually devised the ceremonial now used at the Annual General Meeting.

The new President, Dr. Renaud Lemieux, was then installed in office and gave his inaugural address. He described the Association as an 89-year-old adolescent

returning to its birthplace, and expressed the hope that it would return for its centenary in 1967. He then presented the past president's badge to his predecessor, and the meeting concluded with The Queen.



Canadian Pacific Railway

Dr. Lemieux invests Dr. Routley with the Past President's Badge.

After the meeting the new President and Mme. Lemieux held a reception in the dining room of the hotel, followed by dancing in the ballroom.

### INSTALLATION SPEECH OF DR. RENAUD LEMIEUX

Après le témoignage d'estime et de confiance qu'on vient de me rendre en me remettant les insignes officielles comme nouveau président de l'Association Médicale Canadienne, vous comprendrez facilement que cette cérémonie traditionnelle, à la fois simple et imposante, me plonge dans une profonde émotion.

Je suis parfaitement conscient des responsabilités qui incombent à la présidence de l'Association et c'est avec confiance et humilité que je m'engage dans cette voie où m'a précédé tout un groupe d'hommes remarquables qui, par leur sagesse, leur habileté et leur prévoyance, ont conduit prudemment les affaires de l'Association, l'ont fait grandir et progresser.

Le docteur Routley fut l'un de ces hommes. Malheureusement, nos traditions l'obligent à quitter la présidence. A titre de Secrétaire général et de Président, le Docteur Routley a guidé avec autorité et une rare clairvoyance les destinées de l'Association pendant plus d'un quart de siècle. Au cours des années difficiles, lorsque tout semblait perdu, son optimisme et sa confiance en l'avenir, ont contribué dans une large mesure à redonner la vie à une organisation chancelante. Il s'est mérité l'admiration de tous.

Avant de m'engager dans ce sentier qu'ont aplani mes prédécesseurs, je désire rendre hommage à ceux qui, avec une telle bienveillance, ont permis mon accession à ce poste; aux membres de la division de Québec qui ont proposé ma candidature, je ne saurais trop exprimer ma gratitude. Ils voudront bien trouver la preuve tangible de ma reconnaissance dans ma fidélité à ne pas décevoir la confiance qu'ils m'ont manifestée. Ma profonde appréciation va à tous ceux qui, de près ou de loin, par leur travail désintéressé



et soutenu, ont rendu possible l'organisation de ce congrès; aux membres des comités et des sous-comités, de même qu'aux officiers de l'Association.

Et au risque de m'attirer un reproche, je désire souligner la part active qu'a prise mon épouse dans les différentes phases de l'organisation de ce congrès. Ses conseils et son jugement m'ont été des plus précieux et je ne saurais trop l'en remercier. Qu'il me soit permis au nom de mes amis de Québec et au nom de notre Division de vous souhaiter à tous la plus cordiale bienvenue. Après 37 ans d'absence, l'Association Médicale Canadienne a choisi cette année de tenir ses assises annuelles en la vieille Cité de Champlain. En ce faisant, elle aura de nouveau découvert ce coin de terre où elle est née, il y a 89 ans et nous espérons, que dans onze ans, elle y reviendra pour célébrer le 100<sup>e</sup> anniversaire de sa fondation.

Le choix de la ville de Québec comme site du présent congrès, prend à mon avis une signification toute particulière; ce choix m'apparaît comme un pas de plus vers ce rapprochement tellement souhaitable des deux groupes ethniques qui ont contribué à la grandeur de notre pays.

Chaque jour, au sein même de la profession médicale et de l'Association, nous voyons naître des amitiés sincères entre médecins d'origine et de langue différentes. La note de cordialité qui domine depuis le début de ce congrès me semble un heureux présage vers la réalisation d'un idéal poursuivi par tous et chacun d'entre nous.

En assumant la présidence de l'Association médicale canadienne, j'entends bien conserver cet idéal et m'efforcer de réaliser une unité de plus en plus vivante, et dans la profession médicale et dans l'Association.

I am certain you all realize the difficulty with which I seek to express the profound emotion aroused by the great honour bestowed on me tonight.

I am overwhelmed with pride but, at the same time, very conscious of the eminent and distinguished men who have held this high office before me.

Dr. Routley was one of these men; unfortunately, our traditions oblige him to leave this office. As President and as Secretary General, he has wisely guided the Association for more than a quarter of a century. In so doing, he has set such high standards that it will be difficult to follow in his footsteps.

With this in mind, I humbly accept the responsibilities involved and will strive to follow in the path of my predecessors and thus contribute to the best of my knowledge and ability to the growth and progress of the Association.

At this particular moment, I would like to express my gratitude to my colleagues of the Quebec Division who have nominated me, and to you who have so confidently approved my election to this coveted position. My thanks go also to the group of hard-working committee men who have made this meeting possible, not forgetting the officials and officers of the Association and their staff. To all and each one, my heartfelt appreciation. And to my wife—thank you; you were wonderful.

On behalf of the Quebec Division, may I extend to one and all a warm welcome to Quebec City. We hope that this visit will be a happy and profitable one and that, when you leave, you will treasure in your memory the charm of our quaint and ancient city.

Incidentally, may I remind you that the Canadian Medical Association was born in this city 89 years ago. We are very happy to see this adolescent come back to his birthplace and we do hope in eleven years from now he will return to celebrate his centenary.

This convention, being held in Quebec at the present time, has I believe a special significance. Every one of us has been conscious of the great social changes which recent history records for Canada and the steady and welcome advance towards Canadian unity.

Such new trends of thoughts and facts as we have witnessed in the social life of Canada can also be found

in the history of the medical profession and the Association.

Some of us, too hasty, may criticize the apparent slowness, the undue caution, with which these changes have taken place. Let us instead attempt to appreciate the true significance of any modification against a background of centuries-old traditions, perpetuated emotions and self-imposed circumspection.

This eighty-ninth annual meeting is, in my opinion, a vigorous and wonderful demonstration of co-operation, increasing friendship and stronger ties joining the French- and English-speaking doctors of Canada.

For me, this is a heart-warming event.

My greatest dream has been absolute unity of spirit within the medical profession of our country. To this end, I have dedicated myself in the past, and to this ideal, I pledge myself tonight as I assume the office of President of the Canadian Medical Association.

## EXECUTIVE COMMITTEE

The Executive Committee of the Canadian Medical Association met in the Library of the Château Frontenac on Friday and Saturday, June 8 and 9. The following answered the roll-call: Drs. J. C. C. Dawson, C. L. Gass, N. H. Gosse, G. W. Halpenny, M. O. Klotz, J. R. Lemieux, A. G. MacLeod, W. J. P. MacMillan, E. S. Mills, R. M. Mitchell, R. M. Parsons, R. W. Richardson, W. deM. Scriver, G. F. Strong, F. A. Turnbull, J. A. Walsh, F. E. Wertenbach and the following C.M.A. officials: Drs. T. C. Routley, A. D. Kelly, A. F. W. Peart, S. S. B. Gilder and Mr. L. W. Holmes.

The Committee was informed of various appointments. Dr. R. C. Dickson has accepted the chairmanship of the Committee on Medical Education in place of Dr. Myron Weaver, who had to resign because of ill health. The Governor-General of Canada, His Excellency the Right Honourable Vincent Massey, has been pleased to accept Honorary Membership in the Canadian Medical Association. Dr. W. E. Bramley-Moore has accepted the chairmanship of the new C.M.A. Committee on Manpower.

The Honorary Treasurer gave an interim report on the finance of the C.M.A. He mentioned that in accordance with a decision of the Executive Committee certain grants which the Federal Government and the Provincial Government of Ontario had given the Association last year to assist in financing the Conjoint Annual Meeting at Toronto had been returned by the Association to the donors, since it was not found necessary to use these moneys. There was discussion of future annual meetings, including the Edinburgh meeting in 1959. Preliminary explorations were being made with a travel agency for steamship and air travel of Canadian delegates to this joint meeting.

Dr. E. F. Crutchlow of Montreal and Dr. C. L. Gass of Sackville, New Brunswick, were appointed official delegates to the annual meeting of the British Medical Association in Brighton, in July 1956. At this meeting Dr. Routley will hand over his chain of office as President of the British Medical Association to his successor.

Interim reports of the committees on Nutrition, Industrial Medicine, National Welfare and International Relations were read. It was decided to invite the Industrial Health Conference, which is a joint convention of five important U.S. organizations in industrial medicine, to hold its annual meeting in April 1959 in Toronto.

The request of the Canadian Association of Radiologists for affiliation with the Canadian Medical Association was approved.

Several items on the Committee's agenda pertained to the World Medical Association. It was agreed that the second week in September 1959 would be a suitable date for the World Medical Association Assembly to take place in Montreal; this would follow the Second World Conference on Medical Education scheduled to

take place in the United States. A letter of appreciation from the World Medical Association was read. This letter expressed thanks to the Canadian Medical Association for their generous contribution of one Swiss franc per member towards the World Medical Association and also thanked the Canadian Supporting Committee of the World Medical Association for their valuable assistance. The World Medical Association has also asked its national member associations to study the question of the role of the individual doctor in the field of preventive medicine. After some debate, the Exec-

### GENERAL COUNCIL\*

At the 89th Annual Meeting of the Canadian Medical Association, General Council met in the ballroom of the Château Frontenac on Monday and Tuesday, June 11 and 12. The proceedings began with a roll-call and a welcome to various visitors, including the chiefs of the medical services of the Armed Forces and the executive officer of the Canadian Forces Medical Council. Dr. N. H. Gosse, Chairman of Council, made a few remarks about the functions of Council, noting its role in re-



*Louis Lanouette, Québec*

Outgoing Executive Committee, June 9, 1956. Standing (left to right), Drs. J. A. Walsh, A. G. MacLeod, F. A. Turnbull, R. M. Parsons, J. C. C. Dawson, F. E. Werthenbach, R. M. Mitchell, C. L. Gass, G. W. Halpenny, A. F. W. Peart, R. W. Richardson, and S. S. B. Gilder. Seated: Drs. M. O. Klotz, A. D. Kelly, E. S. Mills, G. F. Strong, T. C. Routley, N. H. Gosse, R. Lemieux, W. J. P. MacMillan, W. deM. Scriver.

utive Committee of the C.M.A. agreed to set up a committee to study the role of the individual doctor in preventive medicine; this committee is to have representation from the fields of public health, general practice, paediatrics and internal medicine. The Executive Committee also went on record as approving the World Medical Association as a suitable body for the administration of international prize awards in the field of medicine. The Canadian Medical Association accepted the invitation of the Canadian Psychiatric Association, which acts as advisory body to the C.M.A. in matters of mental health, to establish a joint committee between the two associations to consider the whole field of mental health in Canada. A grant was made to the C.M.A.'s Section of Physicians in Public Service to help defray the costs of a proposed survey of salaried physicians in Canada. It was also suggested that the Canadian Medical Association set up a special committee to study, with the help of other medical and lay-medical organizations, the over-all allocation of funds received by public subscription in relation to various health needs.

Before the close of the session, the Chairman of Council expressed the thanks of the Executive Committee to the six outgoing members, Drs. Gass, Mitchell, Scriver, Strong, Walsh and Werthenbach. A special acclamation was given to Dr. Scriver, who has a record of long and valuable service to this Committee.

solving the inevitable differences in thinking between various geographical and specialist groups across Canada. Dr. T. C. Routley, President, wished Council success in its deliberations and expressed on behalf of Council gratitude to local participants for the possibility of meeting in Quebec. Council were then welcomed to Quebec by the President-elect, Dr. Renaud Lemieux. The report of the Committee on Archives was read by Dr. H. E. MacDermot; this year deceased members were not mentioned by name, but the usual silence was observed. The *Executive Committee's report* was taken with Dr. W. deM. Scriver in the chair. Some points from this report are as follows: The Executive noted the cordial invitation extended to all members of l'Association des Médecins de Langue Française du Canada to join the Canadian Medical Association at this meeting so that this occasion might be used to promote and foster the friendship which should exist between all Canadian doctors. The Executive accepted with pleasure and keen anticipation the invitation of the Alberta Division to hold the 90th Annual Meeting in Edmonton. A preliminary survey of arrangements has been made and prospects are bright for an excellent meeting there from June

\*As usual, the reports to Council will be printed in full in a later issue. The present notes represent only a summary of some of the proceedings.



17-21, 1957. Beyond this, the schedule of future annual meetings was detailed as follows: In 1958, Halifax (New Brunswick Division), June 15-19; 1959, Edinburgh (Conjoint Meeting with B.M.A.), July 16-24; 1960, Banff, June 13-18; 1961, Montreal; 1962, Winnipeg; 1963, Toronto; 1964, Vancouver. It is necessary to arrange for these meetings many years ahead because of the increasing difficulty in reserving hotel accommodation.

The membership of the Association for 1955 showed an increase over that of 1954 of nearly 700 persons. At the close of 1955 the membership of the Canadian Medical Association was exactly 11,000. The greatest increase (402) was in Ontario. Awards of senior membership were read out, and it was mentioned that by unanimous vote of the Executive Committee His Excellency, the Right Honourable Vincent Massey, Governor-General of Canada, had been elected an honorary member of the Canadian Medical Association. The certificates of honorary membership were due for presentation by the President at the General Council on Tuesday, June 12.

The following Canadian medical societies, duly proposed by the Executive Committee, were admitted by Council to affiliation with the C.M.A.: Canadian Association of Pathologists, Canadian Association of Physical Medicine and Rehabilitation, Canadian Association of Radiologists, Canadian Ophthalmological Society, and the Society of Obstetricians and Gynaecologists of Canada. Admission of these societies has raised to 18 the number of national medical societies formally affiliated with the C.M.A.; in addition there are nine affiliated national organizations of mixed lay and medical membership with interests in the field of health.

Meetings of national committees under the auspices of the C.M.A. were duly reported. Preliminary notice was given of a conference on postgraduate medical education which will take place in 1957 under the auspices of the Committee on Medical Education. Two new committees were briefly mentioned at this point: the Special Committee on Traffic Accidents whose divisional chairmen met on April 20 and 21 in Montreal, and the new Committee on Civil Disaster chaired by Dr. A. J. McGanity. The Special Committee on International Relations reported briefly to General Council on its activities in connection with the World Medical Association. The Committee has experienced some difficulty in dealing with some of the questions addressed to it by the World Medical Association on account of the rather nebulous nature of the issues involved and the rather special conditions prevailing in Canadian medicine. However, it continues to give consideration to the problems involved and gives such assistance to the central office as is required of it. The Canadian Supporting Committee is stated to have received once more donations of \$1,000 each from the Canadian Pharmaceutical Manufacturers Association and the Canadian Medical Association. Individual memberships at \$10 a year are still available to interested individuals, and 143 such members have currently enrolled. It is the hope of the Supporting Committee that resources will soon permit of sending a Canadian medical teacher or teachers to areas of need in under-privileged countries.

*Report of Honorary Treasurer.*—Dr. E. S. Mills of Montreal, Honorary Treasurer, submitted his financial report for the year ending December 31, 1955, as audited by Messrs. McDonald, Currie and Co., together with a brief report from the Finance Committee and comments on certain items of revenue and expenditure. The total assets of the Association at the end of 1955 exceeded \$630,000, but a relatively large surplus was applied to the purchase of the Association home. It was the Treasurer's view that the purchase of this property, 150 St. George Street, Toronto, will prove to be a shrewd financial outlay, in addition to its other obvious advantages. He reported with pleasure that increased advertising revenue had met the cost of publishing the Journal twice monthly, thus avoiding the necessity of calling upon reserve funds to meet any deficit. Revenue for 1955 was considerably higher than for 1954, the

increase being due almost entirely to three items: advertising, membership fees, and the Annual Meeting. Expenditures, however, were also up sharply from the previous year, the two main items being Journal printing and special grants. Of the excess of revenue over expenditure, almost half accrued from the joint B.M.A.-C.M.A.-O.M.A. meeting, so that the actual margin, considering the volume of business in which the C.M.A. is now engaged, was not by any means an excessive one. Dr. Mills mentioned in passing that grants received towards the cost of the joint B.M.A.-C.M.A.-O.M.A. meeting had been returned to both the Federal Government and the Government of Ontario. The money had not been required because the doctors of Toronto and district in particular rallied round the Association and provided hospitality to so many of the British guests for whom the C.M.A. had anticipated paying the bill.

*Report of Managing Editor.*—Dr. T. C. Routley, Managing Editor of the *Canadian Medical Association Journal*, reported on the business side of the Journal. He mentioned that this was the first year of operation of the twice-a-month Journal and that the financial position was very much better than had been anticipated. Instead of incurring a deficit of some \$35,000 as had been thought possible, rapid increase in support from advertisers turned this into a profit of almost \$30,000. The figures for the first four months of 1956 were just as favourable. Both Dr. Routley and later the Editor left the thought with Council that at some future date attention will have to be given to the idea of producing the *Canadian Medical Association Journal* weekly, although neither official made any recommendation to the present General Council.

*Report of Editor.*—The Editor of the *Canadian Medical Association Journal*, Dr. S. S. B. Gilder, gave his first report to Council. He said that the routine of twice-a-month production of the Journal is now well established and operating smoothly. He stressed that the Journal was now publishing a greatly increased number of pages per month and that the number of pages was tending to rise. This was essential if good news coverage was to be given. He commented on the increase in the number of original articles submitted to the Journal, a reflection of the increase in volume of medical research in Canada. He regarded this as an encouraging sign, though it would entail a rise in the rejection rate of papers. After rendering thanks to all those physicians in Canada who had so generously given help to the Journal in the past year, he left with the General Council the thought that it might be necessary and desirable at some future date for the Canadian Medical Association to enlarge its publishing activities by launching certain specialist journals for which there was a growing need in Canada.

*Report of Committee on Approval of Hospitals for the Training of Interns.*—The Committee had met in Toronto on April 26, 27 and 28 and reviewed applications received to date; 58 hospitals had been reviewed and 47 approved.

The afternoon session was entirely devoted to discussion of the report of the Committee on Economics, presented by Dr. Roy Richardson, Chairman. Two areas of the Committee's report came in for particularly prolonged debate and criticism. The first related to the negotiations which had been continuing with the Department of Veterans Affairs for an adequate schedule of fees. Some members of Council were not happy with the idea that a national committee was in a position to negotiate a fee schedule which would be binding on all ten provinces and might be used as a pattern for other governmental fee schedules. General Council was informed that the Executive Committee, with particular reference to this point, had already taken action in appointing a special committee to study certain aspects of the structure of the Canadian Medical Association. The following resolution was adopted at the close of this section of the debate:

"That whereas this General Council is aware of the appointment of a special committee to enquire into the terms of reference of and delegation of authority of

various committees, and more particularly the Committee on Economics;

"BE IT RESOLVED that the Committee be instructed to continue their activities as in the past, but that negotiations on tariff in particular should recognize divisional differentials, and

"BE IT FURTHER RESOLVED that in the interim the Executive Committee be the liaison body, and where necessary the negotiating body, on behalf of the Canadian Medical Association, and

"BE IT FURTHER RESOLVED that the Executive Committee report on the findings of its special committee at the meeting of General Council in 1957."

The other sections of the report on which there was particularly keen debate were concerned with the allocation of fees when general practitioners and surgeons (or other specialists) were jointly rendering care to patients insured under sponsored prepaid medical care plans. There was no uniform system across Canada for recognizing the general practitioner's part in such cases. The Committee then went on to discussion of health insurance as set out in the report of the Committee on Economics, and in the report of the Executive Committee. Here it was evident that many delegates felt disturbed at the attempts to include radiological and clinical pathological services within the framework of hospital care. Finally a resolution carried to add to the Executive Committee's report the following:

"The Canadian Medical Association affirms that radiological and clinical pathological services are physician services and not hospital care, and should be so treated in any insurance plans.

"BE IT RESOLVED that this decision be made known to the Federal and Provincial Governments."

At the Tuesday morning session of General Council the debate continued on the report of the Committee on Economics, and at this point the last section on the relationship with T.C.M.P. in regard to economic research was discussed. The Committee on Economics had recommended that a Department of Economic Research be established within the C.M.A. and consideration had already been given to a joint project with T.C.M.P. This department would be concerned with gathering information on medical economics and with the analysis and assessment of statistical and other data from the experience of member plans and the interpretation and application of this information, so as to make it readily available to the profession across Canada. Council supported the recommendation of the Committee that the Canadian Medical Association make every effort to set up and support such a department.

**Committee on Nominations.**—The Committee on Nominations brought in its recommendations, all of which were accepted by Council, and the following were elected to office. The President-elect is Dr. Morley Young of Edmonton. The Chairman of Council is Dr. N. H. Gosse of Halifax; the Honorary Treasurer, Dr. E. S. Mills of Montreal. The new Executive Committee will consist of: Dr. F. A. Turnbull, Vancouver; Dr. R. M. Parsons, Red Deer; Dr. C. L. Tisdale, Prince Albert; Dr. R. W. Richardson, Winnipeg; Dr. J. C. C. Dawson, Peterborough; Dr. M. O. Klotz, Ottawa; Dr. M. S. Douglas, Windsor; Dr. G. W. Halpenny, Montreal; Dr. T. J. Quintin, Sherbrooke; Dr. G. M. White, Saint John; Dr. A. G. MacLeod, Dartmouth; Dr. W. J. P. MacMillan, Charlottetown; Dr. C. D. Kean, St. John's.

**Accreditation of Hospitals.**—Dr. E. K. Lyon presented the reports of the C.M.A. representative on the Joint Commission on Accreditation of Hospitals and also of the Chairman of the Committee on Hospital Service and Accreditation of the Canadian Medical Association. The two reports were debated together. In the latter of the two reports, the Committee had stressed the fact that the responsibility for hospitals not receiving accreditation in many instances rests squarely on the shoulders of the medical staffs of those hospitals. The Committee reported that there are in Canada some 850 general hospitals over 25 beds which could be surveyed under the Canadian program. In 1954 only 285 of these hos-

pitals were fully accredited and in 1955 the number of hospitals carrying the stamp of approval had risen to 302, so that approval of all hospitals in Canada is still distant. It was apparent from the debate on these two reports that everyone was looking forward to the day when accreditation of hospitals would be an all-Canadian program. Council expressed itself as in favour of an all-Canadian program of hospital survey and accreditation and recommended to the Executive Committee that this be instituted as soon as possible.

At the afternoon session on Tuesday it was reported that 131 representatives had answered the roll-call to General Council. Reports were received from the Income Tax Committee, the substance of which is already generally known, and the Committee on Approval of Schools for Laboratory Technologists, which submitted some revisions of its "Basis for Approval of Schools for Laboratory Technologists in Canada". Dr. McGanity presented the first report of the Committee on Civil Disaster which was authorized only early in January and was therefore in the interim stage. Preliminary steps had been taken by the Committee to survey the situation as regards medical participation in civil disaster programs across Canada, and it was clear that there was much work to be done both at the Divisional level and by the Committee in an advisory capacity. An addition to the report was agreed upon, pointing out the responsibility of the medical profession in some instances for failure to complete an organization for civil disaster.

Dr. G. R. F. Elliot presented the report of the Committee on Public Health. This contained recommendations on the following subjects: (1) resuscitators, (2) poison control centres, (3) professional control of nurseries for new-born, (4) care of the fetus and the new-born, (5) public health teaching in Canada. Recommendations on resuscitation were designed to stimulate active interest in this important work. The Canadian Paediatric Society representative indicated the interest of his society in setting up poison control centres for advice in cases of poisoning; in the opinion of the society, such centres should be set up in paediatric hospitals. Attempts are to be made by the C.M.A. Divisions to discuss with Provincial Departments of Health the establishment of poison control centres, mainly for information or educational programs in cases of poisoning, but secondly for treatment of poison cases. The report by Dean Chester Stewart on the Teaching of Public Health and Preventive Medicine in Canadian Medical Colleges was referred back to the Committee on Public Health for further study. The report of the Committee on Public Health as a whole received commendation from the floor.

The report of the Committee on Public Relations revealed a great extension of activities, associated of course with the recent appointment of a public relations officer, Mr. L. W. Holmes. A Code of Co-operation between organized medicine, physicians, press, radio and television is to be circulated to the Divisions for comments and amendment. The report of the Committee on Rehabilitation, presented by the chairman, Dr. A. T. Jousse, contained extensive proposals for rehabilitation services at the provincial and national levels. These recommendations included proposals for a Disabled Persons' Rehabilitation Act, including a definition of disabled persons, a system of administration, and recommendations for assistance to provincial governments with medical examination, treatment, vocational training, hospital care, etc. There were also recommendations involving amendments to existing legislation, continuation of existing legislation and separate recommendations for the mentally ill and for crippled children.

Dr. Harold Elliott read the report of the Committee on Traffic Accidents. Much of this was informative and included a description of the meeting on April 20 and 21 which has already been reported in the June 1 issue of this Journal. The recommendations of the Committee were adopted by Council and included recommendations for the establishment of a Canadian Medical



Accident Research Foundation, for which a charter has to be sought. It was also recommended that a Standing Committee of the C.M.A. be established to be named a Committee on the Medical Aspects of Traffic Accidents. This committee will confine its attention to medical aspects of traffic accidents, for which it is best qualified, but will also co-operate with engineering and other safety bodies now providing service in Canada.

In the absence of the Chairman, the Report of the Committee on Ethics was received by Council. Dr. H. E. Hobbs gave a brief report from the Canadian Psychiatric Association, which now acts as an advisory body to the C.M.A. on mental health matters.

### ANNUAL MEETING, QUEBEC DIVISION

The Annual Meeting of the Quebec Division of the Canadian Medical Association was held in the Ecole de Commerce, Quebec, in conjunction with a luncheon on Wednesday, June 13. Dr. Arthur Powers of Hull was in the chair during the reception of reports of the various committees of the Division. Dr. Powers then gave a brief valedictory address and Dr. Vance Ward reported various nominations on behalf of his committee. Dr. T. J. Quintin of Sherbrooke was nominated as President, and Dr. Georges Leclerc of Montreal as President-elect. Dr. Walter Scriver is to be Chairman of Council, while Dr. G. W. Halpenny continues as Honorary Secretary. Dr. M. R. Dufresne has been appointed as Assistant Secretary. Later in the proceedings, Dr. Dufresne addressed the membership and stressed in particular the need for him to visit local societies in the Province and make close contact with the membership. Dr. T. C. Routley, President of the C.M.A., installed Dr. T. J. Quintin as President. He said that in medical statesmanship and leadership the Province of Quebec had done more than any other province for Canadian medicine. Dr. Quintin thanked the Division for the honour bestowed on him. The Secretary pointed out that this was the largest attendance that they had ever had.



*Canadian Pacific Railway*

The Past President of the Quebec Division, Dr. Arthur Powers, congratulates his successor in office, Dr. T. J. Quintin, before handing over the presidency.

### FEDERATION OF CANADIAN MEDICAL WOMEN

The Federation of Canadian Medical Women held an Executive and a Business Meeting in Quebec on June 12 in the afternoon, followed by a reception given by the new President, Dr. Ruth L. Wolfe, of Montreal, on behalf of the Quebec group. The reception was held



*Canadian Pacific Railway*

The new President of the Federation of Medical Women of Canada, Dr. Ruth L. Wolfe, receives her badge from Dr. Routley. At the left, the outgoing President, Dr. Marion Hilliard.

in the Jacques Cartier Room of the Château Frontenac and was attended by all the women doctors present on that date. No separate dinner was held, in view of the fact that the group joined the C.M.A. dinner of the Quebec Division.

### CONFERMENT OF DEGREES

At a special convocation of the University of Laval the Vice-Rector of Laval, Monsignor Ferdinand Vandry, conferred degrees on four distinguished members of the Canadian Medical Association. A large company of members and their wives gathered in the Salle des Promotions of the University at 5.30 on Thursday, June 14, to witness this scene. The meeting began with an invocation by the Vice-Rector, and the four new doctors of science were introduced one by one to the company, given their degree, and invested with the robe and brought forward to sign the Golden Book of Laval. The first in the list of honorary doctors was Dr. T. C. Routley. He was followed by Dr. G. F. Strong of Vancouver and then by Dr. Léon Gérin-Lajoie, Professor of Obstetrics and Gynaecology in the University of Montreal. Finally the Chairman of C.M.A. Council, Dr. N. H. Gosse, received a degree. Dr. T. C. Routley thanked the University on behalf of the English-speaking members. Dr. Routley gave several reasons why he was particularly happy to be honoured by Laval. In the first place, he said that he was a traditionalist and that Laval represented the university of Canada in which tradition was most strong. Secondly, he pointed out that Laval through its growth had continued to demand very severe entry requirements. Thirdly, he said that although it was the traditional guardian of Catholic and French culture on this continent, Laval had many associations outside this. He stressed the services which



*Canadian Pacific Railway*

A group taken at the conferment of honorary degrees at Laval University to Dr. T. C. Routley, Dr. G. F. Strong, Dr. Léon Gérin-Lajoie and Dr. N. H. Gosse. Standing (left to right) are Dr. Strong, Dr. Gosse, Dr. Lemieux, Dr. Routley and Dr. Gérin-Lajoie. Seated (left to right), Mgr. Vandry (Vice-Rector), Mgr. Roy (Chancellor), and Dr. Jean-Baptiste Jobin, Dean of the Faculty of Medicine.

Laval had rendered to humanity and expressed the wish that the University would continue through the centuries to perpetuate the traditions of its noble founder.

Dr. Gérin-Lajoie paid tribute to the teaching of Laval and expressed the opinion that it was only due to the teaching which he had received in his youth that he now was able to qualify for the honour conferred on him. He expressed the hope that our great national heritage in Canada would continue to be enriched by the existence at the top level of a unity of spirit in spite of the diversities of cultures, languages and customs in Canada.

After the ceremony the guests moved down into the gardens of Laval where they were received by the Chancellor of the University, Monsignor Maurice Roy, and by the Vice-Rector.

## SOCIAL EVENTS

*Sunday, June 10.* There were two activities on Sunday morning open to the Executive and other visitors, as well as local members of the Canadian Medical Association. The service of thanksgiving, prayer and dedication on the occasion of the Annual Meeting of the Canadian Medical Association, arranged by the Federation of Medical Women of Canada, was held at 11 a.m. in the Cathedral of the Holy Trinity, Quebec. The Anglican order of Morning Prayer was followed, the first lesson being read by Dr. T. C. Routley, President of the Canadian Medical Association, who read a passage from the 13th chapter of Isaiah. The second lesson was read by the Chairman of General Council, Dr. N. H. Gosse, who read from the 13th chapter of the Gospel according to

St. Luke. The sermon was preached by the Most Reverend Philip Carrington, Archbishop of Quebec.

The other activity taking place simultaneously with the above was a parade at the Citadel, followed by Mass in the Chapel of the Citadel. In spite of the weather, which was cold and rainy, a good muster of Executive Committee and local division members turned out to watch the Changing of the Guard on the parade ground. The guard was supplied by the 22nd Royal Regiment, whose band was also present to play a variety of martial and other music. The Changing of the Guard, with the participants in full dress, including red coats and bearskins, was followed by the celebration of Mass in the beautiful little chapel adjoining the parade ground; Mass was said by Colonel the Reverend Maurice Beaudry, Senior Roman Catholic Chaplain to the Canadian Army. Foremost in the congregation on this occasion were the President-elect, Dr. Renaud Lemieux, and his wife, and Dr. W. J. P. MacMillan of Charlottetown, P.E.I., and his wife. Incidental music included César Franck's *Panis Angelicus* and Bach's *Jesu Joy of Man's Desiring*. The sermon was given partly in French and partly in English, the priest reading to the congregation part of an oration given by the Pope recently to 5,000 physicians in Italy.

After the two services, at the invitation of the Reverend Mother Superior of Saint-Sacrement Hospital and of the sisters, visitors and hosts met at a coffee party in the library of Saint-Sacrement Hospital and had the opportunity to admire its representative and well-furnished library.

There was no official program for the rest of the day. Through the kindness of members of the Quebec Division, all visitors were invited to small private parties at the houses of the former, either in Quebec or in the surrounding district.





*L'Evenement Journal, Quebec*

A happy group on the Royal Terrace at the Governor-General's reception. Left to right: Dr. C. A. Gauthier, Mme. Samson, Dr. M. Samson, Dr. R. Lemieux, Mme. Lemieux, The Rev. Fr. Henri Lévesque, the Rt. Rev. Philip Carrington, the Rt. Hon. Vincent Massey.



A general view of the Dinner to Council.

*Adolphe Roy, Quebec*



*Canadian Pacific Railway*

Dr. Léon Gérin-Lajoie signs the Golden Book at Laval University on receiving his degree of Doctor of Science. He is being watched by (left to right) Mgr. Vandry, Mgr. Roy and Dr. P. E. Gosselin.

## C. M. A. ANNUAL MEETING



*Adolphe Roy, Quebec*

The Governor-General in conversation with (left to right) Dr. Arthur Powers, Dr. R. Lemieux and Dr. T. C. Routley.

*Monday, June 11.* During the course of the morning the first of the daily coffee-parties for the ladies was held in the Salon de Verchères, Château Frontenac.

The highlight of the day was the reception given by the Governor-General, His Excellency the Right Honourable Vincent Massey, in his summer residence at the Citadel. Mr. Massey received not only members of Coun-



*Canadian Pacific Railway*

**Dr. and Mrs. Routley in conversation with the Governor-General.**

cil of the Canadian Medical Association and members of the Quebec Division, but also a brilliant representative gathering of other professions in Quebec City. Among the Governor-General's guests were: Mr. and Mrs. Lionel Massey; Colonel Locke Milkin, Comptroller



*Canadian Pacific Railway*

**A scene on the Royal Terrace of the Citadel at the Governor-General's reception.**

of the Governor-General's Household; Mr. Esmond Butler, Assistant to Mr. L. Massey; Archbishop and Mrs. Philip Carrington, Monsignor A. M. Parent, Monsignor F. Vandry, Dean and Mrs. R. S. Seaborn, Madame Onésime Gagnon, Reverend Father Henri Lévesque, Reverend Arthur Maheux, Brigadier and Mrs. Jean V. Allard, Brigadier and Mrs. F. J. Fleury, Honorary Aide-de-Camp Wing Commander and Mrs. J. L. Larochelle, Commander and Mrs. W. J. Mylett, Commander and Mrs. J. M. Favreau, Wing Commander and Mrs. E. L. Badoux, Lt.-Colonel and Mrs. L. F. T. Trudeau, Major

J. P. Martin, Captain Guy Robillard, His Worship J. A. Begin, Mayor of the City of Lévis, and Mrs. Begin.

The reception took place in the lovely rooms of the Governor-General's summer residence. Fortunately, the extremely bad weather which until then had dogged this Convention relented. Early in the afternoon the sun came out and by the time the reception was held conditions were perfect. The guests were therefore able to stroll on the celebrated terrace where Messrs. Churchill and Roosevelt were photographed after their talks during the war. The band of the 22nd Royal Regiment played appropriate music. As with so many social events of this Convention, the arrangements were perfect, and everyone went away thrilled and contented.

The Divisional Secretaries of the Canadian Medical Association held a dinner meeting at the Château Frontenac, their host being the Honorary Secretary of the Quebec Division, Dr. G. W. Halpenny. As is customary on these occasions, the meeting had two aspects, serious discussion and good fellowship. The Secretaries welcomed to their meeting the new Assistant Secretary of the Quebec Division, Dr. Maurice R. Dufresne. The menu was more than worthy of the province and of the occasion, and old inter-Divisional friendships were renewed and new ones formed, to the general benefit of the Association.

#### *Dinner to General Council*

The dinner to the General Council of the Canadian Medical Association on the occasion of the 89th Annual Meeting was held in the ballroom at the Château Frontenac on Tuesday, June 12. The ballroom was packed to the doors on this occasion and some 465 persons sat down to dinner, the guest of honour being His Excellency the Governor-General, the Right Honourable Vincent Massey. The menu served consisted of traditional Quebec dishes, such as quiche québécoise, coquilles gaspésiennes and oie rôtie. The toast to the Queen was proposed by the Chairman of the dinner, Dr. Arthur Powers, President of the Quebec Division, who welcomed His Excellency and the other visitors. His Excellency, the Right Honourable Vincent Massey, proposed the toast of the Canadian Medical Association and made a memorable speech (which appears elsewhere in this issue). He began by pointing out that he was closely associated with the medical profession, having last year been made an honorary gynaecologist and obstetrician. He had a tilt at the concept of psychosomatic medicine, quoting Miss Phyllis McGinley, the American comic poet, in his support. He deplored the ever increasing specialization of physicians and the associated dehumanization of the patient, who, instead of being treated by his comfortable old family doctor, was now treated by what His Excellency referred to as a medical task force. He referred with pleasure to two tendencies in the medical profession today. The first was the increasing number of women doctors in the profession. He welcomed them because of the special contribution they had to make. The second tendency which he observed with unmixed pleasure was renewed attention to the general education of those entering the profession of medicine. He pointed out that although some experience of liberal education does not make a man a good doctor, he cannot be a good doctor without it. Dr. Norman H. Gosse, Chairman of Council of the C.M.A., replied to this speech on behalf of the Association. He began in French and continued in English. He thanked those responsible for the organization of the dinner and indicated the great joy to all present at seeing the representative of our Queen present on this occasion. He requested the Governor-General to convey to Her Majesty the attestation of humble fealty of the Canadian Medical Association, together with sincerest expressions of affection. He referred to the awe with which anyone with a sense of history must approach a visit to Quebec City. Sensitive members of the Association could not fail to hear in that city the voices of the men who had made Canadian history, in education, in politics and





Canadian Pacific Railway

The Governor-General delivers his address at the Dinner to Council.

medicine. He expressed a sincere conviction that, despite all handicaps and impelled by their obligation to society as a growing profession, the doctors of Canada would in unity of spirit continue to give of their best.

Dr. T. C. Routley then conferred honorary membership in the Canadian Medical Association on the Governor-General, pointing out that although provision was made in 1867 for honorary memberships, only 15 had ever been conferred, and there were at present only three other living honorary members, all of whom were medical men and one of whom, Professor Lacasagne of Paris, was actually present at the meeting. His Excellency was then called upon to unveil a plaque carved by Colonel D. Stuart Forbes, which showed the arms of the Province of Quebec together with those of the three universities having medical faculties. This plaque is designed to hang on the wall of the boardroom at C.M.A. House, Toronto. Dr. Marcel Langlois then took over the post of master of ceremonies during an hour of French Canadian entertainment. Two groups entertained the guests—Les Villageois, who danced traditional folk dances of which the handkerchief dance was particularly admired, and Les Colégiens Troubadours, who delighted us with Canadian songs including the ever popular *Alouette*.



Canadian Pacific Railway

Dr. Lemieux and the Mayor of Quebec, Mr. Wilfrid Hamel, in conversation with Dr. Routley.

#### Civic Reception

On Wednesday, June 13, at 5.30, His Worship the Mayor of Quebec, Mr. Wilfrid Hamel, and members of the city council received members of the Canadian Medical Association in the Jacques Cartier and Champlain rooms of the Château Frontenac. A long line of guests filed past members of the city council, who welcomed them cordially to the city.

#### Ladies' Luncheon

The ladies held a luncheon party at the Château Frontenac on Thursday, June 14. The guest speaker was the well-known archivist of Laval University, the Abbé Maheux. The subject was "Quebec, Stones and a Heart". The speaker was introduced by Madame Lemieux, who mentioned that the Abbé's ancestors had lived in the Province of Quebec for three centuries and that he was an authority on history and classics. He spoke in English and in French and gave a brief outline of the story of the French people in Quebec from early days, telling how their culture had grown, and how in spite of the conquest by the English they had learned to live side by side with aliens and still preserve their own language and customs. Dr. Jessie Scriber thanked the Abbé for his address and Mrs. Ettzell of Winnipeg thanked the local ladies on behalf of the visitors. Seventeen prizes were drawn for, including such valuable articles as a mink stole, a silver tray and a travelling bag.

#### PHYSICIANS' ART SALON

The Physicians' Art Salon was sponsored by Frank W. Horner Ltd. for the twelfth consecutive year and as usual attracted much attention. The showing displayed fine art, monochrome photographs and colour transparencies which were the work of Canadian physicians and undergraduates in medicine. Pictures were hung in the St. Lawrence room of the Château Frontenac, and as usual prizes and awards of merit were made in each category. The entries were judged by a distinguished panel, including J. B. Soucy, Director of the Ecole des Beaux Arts at Quebec City, J. P. Lemieux and G. A. Driscoll. It might also be mentioned at this point that the Ecole des Beaux Arts had staged an exhibit of its work both in painting and in sculpture in the Salon de Verchères of the Château.

At the Salon there were at least one hundred exhibits, together with photographs. Of the one hundred paintings, less than twenty were in the contemporary class. There were about a dozen portraits, including a particularly striking one by Dr. E. V. Currie, which received an award. In the contemporary class the first prize was given to a picture by Dr. M. Carbotte entitled "Soleil". This showed sunflowers, greens and yellows, and gave a very cool and pleasing effect. The second prize was awarded to a clever piece of design entitled "The Deserted Farm". There was a nice use of line, uncluttered and with a real air of abandon. We noted in passing a work by Dr. Harvey Agnew (which did not receive an award) entitled "Mountain Solitude". This work had a subtle geometrical design through which a well-defined composition emerged. We were also pleased to see again in the Palette Club show (consisting of works by former winners) Dr. Harvey Agnew's picture "Mexican Heat". First prize in the traditional class was won by Dr. G. V. Emont with a study of field poppies in a vase. This was brilliant and splendid, a gay and free piece of work. The second prize was won by Dr. Pfeiffer and showed a Welsh scene "Pontuchel on the Clywedog", a clean, tidy picture of a Welsh village with good use of colour.

and shadow. Other entries receiving awards included a snow scene by Dr. M. F. Newell, in which the composition was relieved from dullness by good use of colour in tones of brown and off-white. Dr. G. W. Forget had contributed a flower arrangement in a stone jar entitled "Une Fleur de la Prairie". Dr. Booth had a cool, placid and charming piece entitled "August Afternoon". We were struck by the painting of Dr. E. V. Currie, who received awards for two out of three of his entries. He showed remarkable ability and technique and was one of the few who seemed to have succeeded in reproducing texture. We also noted with pleasure three entries by Dr. Locke, whose clean, delicate wash stood alone. His outdoor scenes were well composed and carried out with a nice precision and clarity that was most pleasing. The full list of winners is as follows:

#### *Fine Art*

*Traditional:* First: G. V. Emond, Montreal, Que. Second: W. M. Pfeiffer, Quebec, Que. Awards: M. F. Newell, Edmonton, Alta.; G. W. Forget, Montreal, Que.; G. H. Booth, Agassiz, B.C.; P. Morin, St. Hyacinthe, Que.; E. V. Currie, Valois, Que.

*Portrait:* First: Evelyn A. Gee, 'Tranquille, B.C. Second: M. F. Newell, Edmonton, Alta. Award: E. V. Currie, Valois, Que.

*Contemporary:* First: M. Carbotte, Quebec, Que. Second: D. Fraser, Toronto, Ont. Awards: J. Calder, Edmonton, Alta.; J. B. McIlraith, Toronto, Ont.; P. Larivière, Montreal, Que.; E. R. Rafuse, St. James, Man.

#### *Monochrome Photography*

First: E. V. Spackman, Lethbridge, Alta. Second: M. A. Marchand, Three Rivers, Que. Awards: H. Smith, Montreal, Que.; J. D. Bricker, Toronto, Ont.; A. Rosseau, Quebec, Que.

#### *Colour Photography*

First: A. Jolicœur, Quebec, Que. Second: J. L. Poirier, St. Catharines, Ont. Third: H. H. Gilbert, Arvida, Que. Awards: W. K. Blair, Oshawa, Ont.; R. F. Hughes, Hamilton, Ont.; H. Popham, Winnipeg, Man.; R. Favreau, Montreal, Que.; B. E. Burton, Toronto, Ont.; J. Gilbert, Montreal, Que. (two awards); W. Bennett, Bala, Ont.; A. W. Györfi, Glace Bay, N.S.; R. M. Kilborn, London, Ont.

#### *Popularity Awards*

Fine Art: G. H. Valentine, St. Thomas, Ont. Monochrome Photography: A. Rosseau, Quebec, Que.

### A VISIT TO THE SCIENTIFIC EXHIBITS

The popularity of these exhibits is reflected in the greatly increased number that were presented this year. An interest-packed hour could be spent, and the high standard attained made a visit well worth while.

The three armed services exhibits gave a glimpse of the tremendous advances made in medical and rescue operations that are being developed in Canada, with particular emphasis on arctic conditions. The R.C.A.M.C. (which won a certificate of merit) showed a complete model of an air-borne medical unit which could be dropped anywhere and set up in 30 minutes. The equipment allowed major surgical operations to be performed right at the site of dropping. The kit included a folding operating table, complete anaesthetic equipment, tents, and casualty toboggan. One unit could deal with 30 major casualties. The staff of this unit were

present and one caught some of their pride and enthusiasm in the project. They carry out a practice drop every six weeks, and have had training to operate the unit in subzero arctic weather.

The Institute of Aviation Medicine of the R.C.A.F. showed some of the problems that have been overcome in the high altitude flying that has come with jet planes and their operation in arctic conditions. Coloured photographs illustrated the selection and training of jet pilots. The research on motion sickness and the physiological problems associated with high speeds were illustrated. A lifelike model of a CF-100 pilot in full flying kit showed the fruits of research with positive pressure respiration needed at altitudes above 40,000 feet, G suits and the carefully made survival kit that is in routine use with air defence command squadrons.

H.M.C.S. *Labrador* making the voyage through the Arctic Circle was a beautiful sight in the Navy's exhibit.

Different aspects of plastic and reconstructive surgery were well illustrated in three exhibits. Dr. A. Genest from the Hôtel-Dieu in Montreal well deserved his certificate of merit. Excellent colour and black-and-white photographs showed the wide range of conditions successfully treated, ranging from reconstruction of the lower mandible and gynecomastia to the repair of congenital defects. Dr. H. Baxter from the Sub-Department of Plastic Surgery at the Royal Victoria Hospital, Montreal, showed the great advances that have been made in the treatment of thermal burns. The superiority of the exposure method over the older occlusive dressing method was particularly impressive. The length of time in hospital was cut by half; the need of blood or plasma transfusions was greatly lessened.

Dr. M. A. Entin from the Department of Experimental Surgery of McGill University had a dramatic display, depicting common forms of roller and wringer injuries which could be sustained by children, women and men, both in the home and through industrial machines. The study included experimental work on the mechanism of the injuries in order to institute the right type of surgical reconstruction. They were divided into compression and avulsion injuries. The photographs showed the original injury and the beautiful work leading to the unbelievable reconstruction of the damaged hands and forearms. Dr. Entin fully deserved his certificate of merit.

The new field of tranquillizing drugs was well covered by Dr. Sarwer-Foner of the Queen Mary Veterans Hospital, Montreal. The principles of use and their therapeutic application were shown. Careful case histories of patients were available for inspection.

Drs. B. Rose and E. McGarry of the Royal Victoria Hospital, Montreal, outlined the use of steroids in allergy. The general principles of treatment were shown, and the results in 70 cases of allergic rhinitis and asthma indicated that some response was obtained in all, while a complete remission was attained in approximately half the patients.

The danger of the antibiotic-resistant staphylococcus was highlighted by Dr. A. Royer's study at the Sainte-Justine Hospital, Montreal. Over 80% of the bacteria isolated during the last five years at the hospital were resistant to penicillin. Resistance to other common antibiotics (with the exception of chloramphenicol) steadily increased during the five-year study.

The other exhibits ranged over a wide field. It was a shock to realize from Dr. Wallace Troup's exhibit from statistics of the Metropolitan Life Insurance Company that perinatal mortality (i.e. stillbirths plus neonatal deaths) accounts for nearly as many deaths in Canada as all forms of cancer and is some seven times higher than all fatalities in road accidents.

The scope of the Canadian Traffic Accident Foundation for Medical Research was obvious in the display shown by Dr. Harold Elliott. The accent of the research is on the epidemiological approach.

Tumours of the head and neck, by Drs. Montreuil and Huot of the Nôtre-Dame Hospital, and Dermatoses and Tumours of the Skin, by the Department of Der-



matology of the Hôtel-Dieu Hospital, Quebec, were beautifully illustrated by colour photographs and well worth the time spent studying them.

For those who were mechanically minded the ingenious cardiac massage developed by Drs. Vineberg and Litvack of Montreal was worth studying. The results of transplants of the internal mammary artery into the human ischaemic heart were impressive and Dr. Vineberg's technique and results of his operation were clearly illustrated.

A model of the sun drew attention to the exhibit of the Department of National Health and Welfare, Ottawa. All the information and services were clear, and samples of the literature which is distributed to the public were available.

Vital statistics of the Province of Quebec were shown by the Ministry of Health, Quebec. The disappearance of diphtheria and the impressive fall in the morbidity of whooping-cough were shown on graphs. The mortality of tuberculosis has fallen in the last 25 years to the record low of 12 deaths per 100,000.

The effect of alpha tocopherol on peripheral vascular condition and burns was shown by Drs. Evan V. and W. E. Shute, of the Shute Institute, London, Ont.

Dr. Paul Williamson of Albuquerque, New Mexico, showed diagrams of the technique of wound closure with plastic tape.

Original books belonging to the old Jesuit College in Quebec and old journals published in 1786 and 1847 were shown by the Canadian Society on History of Medicine, Laval University.

At the end of this tour one's appetite was stimulated by the coloured photographs of roast steak chops shown by the Defence Research Medical Laboratories, Toronto, but on close inspection one realized that the fate of these delicious dishes was dehydration!

The Committee on Scientific Exhibits met on Wednesday, June 13, and awarded the following certificates of merit:

1. Institutional exhibit: The R.C.A.M.C. Airborne Medical Services: "Cold Warfare Display".

2. Private exhibit: Dr. M. A. Entin, Royal Victoria Hospital, Montreal: "Roller and Wringer Injury of Upper Extremity".

3. Private exhibit: Dr. A. Genest, Hôtel-Dieu de Montreal: "Plastic and Reconstructive Surgery".

P. B. STEWART

## SCIENTIFIC PROGRAM

### INDICATIONS FOR THE SURGICAL TREATMENT OF HEART DISEASE (June 14)

Panel: Dr. Palmer (Chairman), Dr. David, Dr. Bigelow, Dr. Fraser, and Dr. Johnson.

At the beginning Dr. Palmer pointed out that the discussion should be oriented more to the general practitioner than to the cardiologist. The discussion was divided into two parts: (1) congenital heart disease; (2) acquired valvular heart disease.

#### 1. Congenital heart disease

At the present time, the following congenital lesions are considered fully curable: patent ductus, coarctation of the aorta and vascular rings. The remainder may be alleviated and perhaps cured: atrial septal defect of the secundum type, and high ventricular septal defect. Other conditions such as tetralogy of Fallot may be only alleviated. Moreover, in these cases the results cannot be equally beneficial because of the variability of anatomical conditions.

Asked by Dr. Palmer if recent improvement in surgical technique had improved the mortality rate, Dr. Bigelow answered that the mortality rate is almost the same, or even higher, but the operation itself probably offers the patient a better prognosis.

The steps in diagnosis of a congenital lesion are: (a) history, with parents' help; (b) regular physical examination, with special regard to electrocardiogram, fluoroscopy and films.

Special investigations such as retrograde aortography are necessary in coarctation for the size and location of the stenosis. Cardiac catheterization is mostly useful in left to right shunts, and angiography in right to left shunt. In general, it is easier to investigate children 1½ years old or more. There was slight disagreement among the panel concerning the necessity of cardiac catheterization for all patients—Dr. Bigelow stressed the higher association of other anomalies in patent ductus arteriosus.

The ideal age for surgery would seem to be: (a) patent ductus arteriosus—any time; (b) coarctation—9 or 10 years; (c) tetralogy of Fallot—if there are no special disturbances, it would seem wise for the time being to delay the operation and await the improvement of open heart surgery.

Physical examination nowadays is much more helpful than previously, because of greater physiological knowledge. In pure pulmonic stenosis, the second pulmonic sound is nearly always slight or absent; in atrial septal defect the nearly constant split second sound and slight systolic murmur are well known; accentuation of the second pulmonic sound frequently represents pulmonary hypertension.

The panel were agreed on the necessity of complete investigation for all blue babies, but Dr. Johnson emphasized the fact that blue babies with congestive failure probably have not an operable lesion. If the patient is not in failure, assessment of the vascular markings may give a clue to the indication for surgery.

In acyanotic infants in failure, one has to remember the dramatic response to surgery of the patent ductus arteriosus, although on the other hand the results in coarctation are less good.

In closing the discussion on congenital heart disease, the panel was of the opinion that the surgical resection of septal defects is not highly satisfactory at present.

#### 2. Acquired vascular lesions

The classification of mitral stenosis used by all participants was: (a) No disabilities—all agreed that these patients do not need surgery. (b) Mild disability—classified as +2 or -2. Surgical operation must depend on the case. (c) Signs of left ventricular failure—ideal group for surgery. (d) Intractable congestive failure—these are poor-risk patients for surgery.

In the good-risk patients, as in groups (b) and (c), the mortality rate runs as low as 1.5%. The over-all mortality is 8% and rises to 15% in group (d).

A few cases of restenosis have been reported by different authors and the panel agreed that the reasons for restenosis are: (a) poor surgical technique at first; (b) calcific process; (c) recurrence of rheumatic fever.

The contraindications to commissurotomy are: (a) active rheumatic fever, except in acute left ventricular failure; (b) recent bacterial endocarditis; (c) predominant mitral or aortic insufficiency; (d) gross calcification of valves; (e) intractable cardiac failure.

Dr. David stressed the points that hæmoptysis and acute oedema are clear-cut indications for surgery. It seems highly advisable to consider a history of embo-

lism as an indication for surgery. Some prefer to wait three months to decrease the possibility of a fresh thrombus. The types of operation for mitral insufficiency do not seem successful at the present. The problem of surgery for aortic stenosis is technically a difficult one, but it would seem wise to recommend operation for patients below 50 and for congenital aortic stenosis.

RAOUL ROBERGE

#### MEDICAL ASPECTS OF TRAFFIC ACCIDENTS (June 13)

The chairman of the symposium was Dr. Harold Elliott of Montreal. The other members were Mr. F. F. Harris, Bureau of Statistics, Ottawa, Dr. C. M. Johnston of Port Arthur, Dr. A. B. McCarten, Edmonton, Dr. B. L. Jewett, Fredericton, and Dr. G. R. F. Elliot, Vancouver.

Mr. Harris noted that statistics are meagre about traffic accidents, which cause 3,000 deaths a year in Canada and \$50,000,000 direct property damage. However we may say that the absolute number of traffic accidents is steadily increasing, the number of deaths is also increasing (mostly in the seven or eight years after the war), the death rate per 100,000 people is increasing, but the death rate according to the number of cars has decreased and levelled off for the last three or four years. This is the No. 1 killer in the 5-23-year-old group and the No. 3 overall killer. There are no official statistics for alcohol. Forty-five per cent of the people killed are passengers, 32% are drivers and 23% are pedestrians. The worst month is December, the worst day is Saturday, the worst time is between 5.00 and 6.00 p.m.

Dr. Elliott stressed that this is the first time at a C.M.A. meeting that a symposium on traffic accidents has been held. He explained the work that should be done by the Department of Education, the Department of Enforcement (police), the Department of Health (medical and physical standards) and the Department of Engineering (roads). Medical members should help in establishing the necessary medical and physical standards and in organizing good first-aid treatment, efficient ambulance transportation and adequate hospital care. In Cornell University, research on the auto crash started with the idea that one does not leave eggs loose in a box when they are to be shipped.

Dr. Johnston sketched the proposed organization for the Canadian Traffic Accident Foundation for Medical Research. The fields covered should include a comprehensive study of the basis of granting licences to people with physical impairment, a psychiatric approach to psychiatrically unfit people in order to correct their disability or reject them, and research into a simple and easily done test for alcoholism. He added that safety in cars should be a competitive item among car manufacturers. The Foundation should have research centres, a co-ordinating office, a medical advisory board, an executive committee, a board of governors and a president.

Dr. McCarten said that traffic accidents are here to stay. In Alberta, the common denominators are the following: (a) excessive use of alcohol; (b) railroad level-crossings; (c) pedestrians in the city late at night, after dark or in bad weather conditions. He emphasized the necessity of better training in the management of trauma.

Dr. Jewett reported that in New Brunswick liquor is only responsible for 4% of accidents. He believes that the medical aspects should be first purely medical (care), and secondly help in licensing, size of signs and enforcement by collecting data, because a statistical approach is needed in proposing something to non-medical departments. He thinks that the Foundation should be at first a bureau for collecting statistics.

Dr. Elliott suggested that in licensing procedures a re-examination should be made every five years with, for persons over 70 years, a yearly medical examination. Cars should have a mechanical check-up twice a year and be fitted with safety belts.

Other speakers stressed the importance of education in prevention of accidents. Tiredness must not be forgotten and also the excitement of the weekend. Dr. Hobbs said that it is difficult to evaluate the effect of alcohol because the alcoholic consumption of persons who do not have accidents is unknown. He stressed that a stable man has a lower rate of accident and that personality is one of the factors to be evaluated.

Dr. Bédard spoke of statistics in greater Quebec City; from which it is evident that alcoholism is indirectly the cause of 90% of the traffic accidents. Alcohol affects judgment, memory and submission to law, leading to excessive speed in most cases.

JACQUES BERGERON

#### QUESTIONS AND ANSWERS IN PÆDIATRIC DERMATOLOGY (June 14)

The first question put to the panel was about hæmangiomas. It was felt that capillary hæmangiomas should be treated early and that surgery should be delayed, leaving the dermatologist in charge of the case. Of course it is recognized that hæmangiomas may heal spontaneously sometimes. The natural history of these lesions is that they appear about a week after birth, grow with the child for about a year, and then tend to regress spontaneously over a period of three to five years. Electrocoagulation and carbon dioxide snow are the most widely used forms of treatment. For æsthetic reasons it was felt that carbon dioxide snow is usually preferable to desiccation by electrical means.

The question of pyoderma aroused a lively discussion, this representing a serious problem in children. The general principles of treatment fall into categories: (a) thorough and frequent washing with soap and water is essential; (b) spreading of the infection must be prevented by cutting fingernails daily; (c) cultures and antibiograms should be made.

The first skin infection discussed was impetigo which, if found on the scalp, is usually caused by pediculosis and if widespread is usually caused by scabies. Broad-spectrum antibiotic ointment four times daily is recommended, but because of the prohibitive price ammoniated mercury ointment 2-5% or Vioform ointment may be used. Potassium permanganate baths are useful when the infection is extensive.

Furunculosis—diabetes was said to be very rarely encountered as a precipitating factor or the cause of the infection. A general principle is that surgical incision and drainage should be done late. Tin preparations and staphylococcal toxoid or vaccine are of little help. Antibiotics are rarely helpful because of the resistant strains of bacteria usually met with. Ringworm infections, usually from animal sources, should be treated by epilation, either by x-ray or manually, surgery being delayed.

Infantile eczema, that is to say the allergic skin disease appearing between the age of six weeks to six months and continuing throughout childhood and sometimes adult life, usually appears after a change in diet and characteristically does not affect the diaper region, whereas in seborrhœic dermatitis this is usually affected. The diagnosis is always difficult. The etiological factors involved include foods, especially in children, and wool and inhalants. The problem of steroid therapy either systemically or topically was discussed and it was felt that prednisone or prednisolone parenterally should be reserved for acutely ill cases. As regards topical medication, a plea was made to manufacturers to reduce the prices of steroid ointments. Any good pharmacist can prepare a suitable ointment by crushing a few tablets and incorporating them in an ordinary base, bringing the price to about half the price proposed by the pharmaceutical companies. Skin oils are often irritating in these cases and should be avoided.

In all the infections discussed, penicillin or sulfonamide ointments are to be avoided because of the frequent sensitivity reactions which they cause.

CLAUDE BELANGER



### PROBLEMS IN THE TREATMENT OF COMMON FRACTURES (June 13)

Dr. D. L. MacIntosh, Toronto, stated that Colles' fracture is the commonest, but unfortunately not the best treated. Functional results are not so good as we think when anatomical reduction is imperfect. The purposes of treatment are: good reduction—maintenance of reduction—mobilization of the fingers and the shoulders. To maintain reduction is the most difficult point. If the length of the radius is not restored, an ulnar subluxation may ensue. Dr. MacIntosh generally prefers local anaesthesia except for apprehensive patients. He stressed that correction with plaster alone is very difficult and recommended use of ulnar deviation and slight palmar flexion. He prefers the Roger Anderson apparatus with pins in the radius and in the second metacarpal. In malunited cases resection of the end of the ulna is to be recommended.

Dr. André Derôme made a few comments on forearm fractures. He recalled that these fractures occur predominantly in the young, and that they are mostly caused by a fall from a height of a few feet. He deliberately eliminated from this discussion crushing of the forearm with large wounds. Some are easy to treat, others are difficult. For instance, the so-called incomplete fractures are easy. Reduction is done by the simple manoeuvre of counter-pronating or supinating the wrist as required and holding this position in plaster cast. However, complete displaced fractures of radius and ulna are difficult to treat because of special anatomical factors. He recalled Evans' statement that rotation of the fragments in the radius is not necessarily according to classical teaching. Evans described a method of finding by x-rays the degree of rotation according to the shape and contours of the bicipital tuberosity. This "tuberosity view" is most useful in placing the distal fragment in proper rotation. Reduction by manipulation and plaster should always be tried at first by traction on the thumb and second and third fingers, and counter-traction vertically by a sling. The plaster moulding to be recommended is the one described by Charnley—oval in cross-section. If a second reduction is necessary, it must be repeated in the first, third and fourth weeks. Open reduction is to be done: (1) if the reduction has been delayed for three to four weeks; (2) if the fracture is comminuted; (3) in oblique fracture of the radius and complete dislocation of ulna at the wrist; (4) if there is slight angulation of bones on the contours of the forearm. In these cases bone grafting and fixation by intramedullary wire are necessary. Plating is not to be recommended.

Dr. Edgar Lépine, speaking on fractures of the leg, stressed mainly these important points: (1) the notion of the "soft tissue hinge", common to the majority of fractures; (2) the necessity of skill in "plaster technique" especially with the "three-point plaster" recommended and well detailed in John Charnley's book, *"The closed treatment of common fractures"*; (3) the need for everyone to develop ability in "the closed treatment of common fractures", thus leaving for very special cases the open reduction which should be practised only in excellent conditions of asepsis.

Dr. Léo Walter, speaking on ankle fractures, made a few remarks on the general principles of treatment. Though it is still true that the majority of ankle joint fractures can be treated by closed methods, in many cases open reduction and internal fixation offer the best solution. In this age of high speed, where limbs are exposed to greater violence, the following indications for the operation are commoner: (1) failure of closed reduction; (2) interposition of bone fragments or of soft tissue, inferior tibio-fibular ligament, periosteum, deltoid ligament, posterior tibial tendon and nerve; (3) impossibility of reduction and maintenance due to excessive swelling. In order to do this type of surgery, the surgeon must have had adequate training in the technique of bone and joint surgery particularly from the point of view of prevention of infection: a post-

operative ankle infection is more disastrous than an inadequate reduction.

According to Dr. Gordon Petrie, in the treatment of a closed fracture of the shaft of the femur in children, one must avoid rotation and angulation. Traction with the legs in symmetrical position is the treatment of choice. Skeletal traction is rarely necessary in a child. Casts can be used in children but will require frequent x-rays to check possibility of angulation. Open reduction and internal fixation in children should not be necessary.

Fractures of the shaft in adults require great violence, so soft tissue may be injured. They are difficult to control because of haematoma and large muscles. Treatment is by traction (fixed or continuous), manipulation and plaster, open reduction and fixation, or a combination of these methods.

Traction tends to overdistract or injure the ligaments of the knee. If fixed traction is to be effective, the fracture must be reduced first. If traction is continuous, continue adjustment of weights. The success of treatment of fractured femur depends on the position obtained and the function of the knee. Open reduction and fixation give accurate reduction and early function. Extra bone chips are used with internal fixation. Internal fixation usually consists of a plate with screws or a Küntscher nail, the latter being preferable especially in mid-shaft fractures.

RAOUL ROBERGE

### EYE EMERGENCIES (June 14)

The chairman of the round table conference was Dr. Roland Viger of Montreal. The other members were Dr. J. Lacerte, Quebec, and Dr. R. M. Ramsay, Winnipeg.

Dr. Viger stressed the importance of a close relation between the ophthalmologist and the general practitioner in the prevention of ocular morbidity and blindness. Any ocular and visual defects in babies and young children should be considered seriously and not brushed aside as unimportant on the pretext that the baby will grow out of it. The baby's eye may be turning because of that very malignant tumour, retinoblastoma, and undoubtedly the baby will not grow out of that. Because of inadequate diagnosis and treatment, there is in Canada a monstrous amount of partial or complete loss of vision.

Corneal ulcer treatment was discussed. This is an emergency. Look carefully for foreign bodies or infections in neighbouring structures. A complete eye examination is the most important part of treatment because healing depends on removal of the cause.

All the members agreed that the use of cortisone is too prevalent. It is better to forego its small benefit sometimes in order to avoid the possibility of globe perforation.

For lime burns of the eye, it is most important to wash the eye out liberally and to treat for shock. Particles of lime must always be looked for. An antibiotic ointment will prevent adhesions. Cover the eyes with a wet dressing, give antibiotics and put the patient at rest. The patient must be observed many times a day in order to maintain adequate treatment.

Sudden loss of vision was discussed. The causes are: (a) vascular accidents; (b) trauma; (c) glaucoma; (d) separation of retina.

Occlusion of the central retinal artery is treated by a sudden reduction of intraocular pressure by exerting pressure on the eye and releasing it right after, or better by a paracentesis. Thrombosis of the central retinal vein is taken care of by anticoagulants.

An ocular concussion must be treated by covering both eyes and immobilizing the patient for several days because of the possible delayed reaction consisting of oedema, haemorrhage, scotoma or loss of vision. Perforation of the eye must be treated in hospital by plastic repair, without forgetting to look for a possible foreign body.

The effect of TV on eyes was discussed. Television is not harmful if use is moderate and if there is a general illumination of the room. Illumination is especially important for people with glaucoma or older people with a tendency to it.

JACQUES BERGERON

#### REHABILITATION OF THE HEMIPLEGIC (June 13)

At the opening of the forum, the importance of the subject was stressed and the attitude the general practitioner should take in regard to the problem emphasized.

There are no official figures on the actual number of hemiplegics in Canada; there are about 2,000,000 in the U.S.A., which would suggest a proportionate number of some 200,000 in Canada.

Not all patients who have had a stroke should be admitted to hospital, since some of them will feel much more comfortable and happy in the family environment.

As to the patient's question, "Shall I recover, doctor?", it was felt by the psychiatrist that the truth must be told to the patient as soon as a reasonably good evaluation of the problem could be formulated.

The question of proper nursing care in the early phase of the affliction was raised. Members of the panel concurred that often it was inadequate and that it was the doctor's duty to insist on early passive movements and instructions as to correct positioning of the paralyzed limbs.

Rehabilitation procedures should be started as soon as a precise and accurate diagnosis is made and, above all, in the case of special procedures, after a proper and thorough evaluation of the medical, surgical, psychological, social and financial aspects of the problem. Only then can a well co-ordinated and integrated program be instituted.

The physical factors to be assessed are the presence of concurrent disease, such as diabetes or endocarditis, the amount of residual power, the quality of sensation and the speech deficit.

Hostility often demonstrated by the hemiplegic arises from deep resentment of actual disability and hardships imposed upon him during treatment. One must let such a patient talk freely about his situation; otherwise he will become depressed and unco-operative. Sending the patient to a rehabilitation centre in order that he may regain self-confidence and optimism is most rewarding. But the most important point is that the hemiplegic should not feel useless; every effort should be directed towards that aim.

Neurosurgical measures to reduce spasticity in hemiplegics are of no avail.

The important problem of stiff shoulders should be dealt with by passive and active movement, preferably in a therapeutic pool, combined with all forms of diathermy. In a few cases brachial plexus block is helpful in alleviating the pain and thus permitting better movements. Stellate ganglion block is also helpful in the shoulder-hand syndrome. It was felt that corticosteroids had little to offer.

Which patients should be referred to a specialized centre? The ones the doctor does not want to treat or is not able to treat properly and early. But the doctor must be prepared to face all the problems of rehabilitation, including psychological and vocational ones. There should be the closest co-operation between the industrial physician and the patient's doctor in order to restore the hemiplegic to suitable employment.

The whole problem comes down to early treatment, first passive then active, after thorough assessment of all facets of the problem.

Some patients do not need care in a specialized centre and these can be treated in the department of physical medicine in a general hospital. Unfortunately, only 15 hospitals, including those of the D.V.A., are so equipped across Canada. Three special centres exist at Montreal,

Toronto and Vancouver. A fourth is being organized in Quebec.

Those attending the meeting felt that special financial assistance should be readily available to patients needing an extensive program of rehabilitation.

CLAUDE BELANGER

#### OBSTETRICAL HÆMORRHAGE (June 13)

The chairman was Dr. Léon Gérin-Lajoie of Montreal, the other members of the panel being Dr. G. M. White, Saint John; Dr. René Simard, Quebec; Dr. B. D. Best, Winnipeg, and Dr. W. D. Marshall, Victoria.

The subject was divided into hæmorrhage: (a) during early pregnancy; (b) in late pregnancy; (c) at delivery; and (d) postpartum. The members of the panel gave a brief summary of the different causes of these hæmorrhages and answered questions. The following is a résumé of the answers given by different members of the panel.

In brief, the diagnosis of abruptio placenta should be thought of when there is a sudden onset of abdominal pain, preceding external bleeding, toxæmic signs and shock. It occurs in the last three months of pregnancy, usually in multiparous women with a high incidence of hypertensive disease or pre-eclamptic state. When bleeding starts, it keeps up and the process of separation goes on, unlike cases of placenta prævia. Except in very rare cases, pre-eclampsia and hypertension do not contribute to bleeding in placenta prævia.

In the majority of severe cases of abruptio placenta, conservative treatment is best, consisting of rest, warmth, morphine, and plasma expanders or blood. The patient is carefully watched and usually labour supervenes. If the condition is stable or deteriorating and the fetus is alive, this is, without doubt, an indication for Cæsarean section.

A patient without any signs of hæmorrhage but with an Hb. value of 60% and red cell count of 3,000,000 ante partum should not be transfused because this is equivalent to an Hb. value of 70% and a count of 3,800,000 in a non-pregnant woman.

In prolonged but not severe bleeding a negative Aschheim-Zondek test after a previous positive test is not sufficient indication for emptying the uterus of its contents. Judgment and decision must be based on clinical grounds and not on a laboratory test. Only after repeated negative tests should one decide that the fetus is dead.

Curettage in abortion poses a controversial question. It is an excellent technique to do this systematically, but it is not necessary and one may wait for symptoms of retention. In pregnancy, when there is bleeding, preparations should be made to avoid abortion and get a consultation to know whether a threatened abortion is inevitable.

A normal amount of blood loss during delivery is 500 c.c. when no uterine constrictant is given to the patient until the placenta is delivered. This amount may be cut down to an average of 255 c.c. when the uterine constrictant is given intramuscularly immediately after the end of the second stage and to 194 c.c. when the constrictant is given intravenously. However, before the constrictant is given intramuscularly, the fundus must be palpated for a possible second baby, because the presence of twins is a contraindication.

According to effect, methylergobasine is not different from Ergotrate or Ergometrine.

All patients with hæmorrhage should have an evaluation of the clotting mechanism; if afibrinogenopenia is present, the physician should try to get fibrinogen or at least fresh whole blood.

JACQUES BERGERON

Other items from the Scientific Program will be published in our issue of July 15.—Ed.



## MEDICAL MEETINGS

CANADIAN ASSOCIATION OF  
PHYSICAL MEDICINE AND  
REHABILITATION

At the Fourth Annual Meeting of the Canadian Association of Physical Medicine and Rehabilitation, held in the auditorium of the University of Western Ontario Medical School, London, from May 31 to June 3, the following papers were presented: Psycho-social study of the upper extremity amputees—G. Gingras, M. Mongeau, V. Susset, R. Lemieux, J.-M. Chevrier and R. Voyer, Montreal; A scoliosis clinic in Saskatchewan—A. C. Kanaar, Regina; Plethysmography in the rehabilitation of patients with peripheral arterial disorders—Lewis Cohen, Detroit; Physiatric treatment in chronic obstructive lung disease—M. Mongeau and R. T. Wilson, Montreal; Observations in the use of ultra-violet light in the treatment of psoriasis—Garnet J. H. Colwell, Halifax; Result of re-training, re cerebral vascular accidents in the elderly—J. G. Pincock, Winnipeg; The use of simple respiratory function tests in the rehabilitation of patients with poliomyelitis—C. R. Woolf, Toronto; Common complaints—but not so common etiologies—John A. O'Reilly, London; The Department of Rehabilitation Medicine, University Hospital, Saskatchewan — Talmadge Hunt, Saskatoon; A report on some clinical investigations during the past year—G. A. Lawson, Toronto; Early handling of neck and back injuries (film)—A. T. Jousse and Harvey Doney, Toronto; Respiratory problems in poliomyelitis rehabilitation—John Merriman, Saskatoon; Below knee splinting in the event of genu recurvatum—J. N. Swanson, Toronto; The home care of patients in respirators—M. H. L. Desmarais, Winnipeg.

The guest speaker at the dinner session was Mr. Scott Allan, Supervisor of Medical Services for the Liberty Mutual Insurance Company, Boston, Mass.

The following officers were nominated for 1956-57: President, Dr. T. H. Coffey, London; Vice-president, Dr. G. Gingras, Montreal; Secretary, Dr. M. Mongeau, Montreal; Treasurer, Dr. John Crawford, Toronto.

INTERNATIONAL CANCER  
CYTOLOGY CONGRESS

The 1956 International Cancer Cytology Congress will be held at the Drake Hotel in Chicago, Ill., October 8 to 13, 1956. This Congress, the first of its kind, will be sponsored by the American Society of Clinical Pathologists, the College of American Pathologists, the Intersociety Cytology Council and the International Union Against Cancer. It is expected that a number of guests from Europe, South America and Latin American countries will be present at this Congress as representatives of the International Union Against Cancer.

The general theme of the Congress will be Exfoliative Cytology and the program to be presented during this period will stress but not be devoted exclusively to the subject of exfoliative cytology in all its various aspects and its relationship to various specialties of medicine.

During this period three of the sponsoring organizations will hold their annual meeting, as follows: College of American Pathologists, the evening of Monday, October 8; Intersociety Cytology Council, the evening of Wednesday, October 10; American Society of Clinical Pathologists, the evening of Thursday, October 11.

A joint banquet of all organizations will be held on the evening of Tuesday, October 9.

## CORRESPONDENCE

## CANADIAN RED CROSS SOCIETY

*To the Editor:*

The Central Council of The Canadian Red Cross Society at its recent annual meeting unanimously approved the following resolution:

"That the doctors, nurses, dentists, teachers and other professional instructors be thanked by the Society for the time and tremendous individual effort which they have expended in the various phases of Red Cross activities."

We shall be very grateful if you will convey this resolution to the Provincial Divisions of your Association. The doctors of Canada have always been generous in their professional support of our National Blood Transfusion Service, our work for crippled children, our Outpost Hospitals and many of our other programs. It is a pleasure for us to express our appreciation of their interest and co-operation.

L. G. MILLS,  
Chairman, Central Council.

The Canadian Red Cross Society,  
95 Wellesley Street East,  
Toronto, Ont.,  
May 31, 1956.

## SPECIAL CORRESPONDENCE

*The London Letter*

(From our own correspondent)

## GENERAL PRACTITIONERS' RECORDS

A recently published analysis by the Registrar General of the records of 13 general practitioners, covering 37,000 patients, provides ample evidence that such records are capable of statistical analysis and can provide valuable information on morbidity rates. So successful has this pilot survey proved that the Registrar General, in collaboration with the College of General Practitioners, is now carrying out a survey covering nearly 1% of the population of England and Wales. In this larger survey 170 practitioners are keeping standard records for 12 months and making them available for statistical analysis.

Some of the interesting findings of the pilot survey are that the family doctor is consulted by about two-thirds of the patients on his list each year, and that half of the patients consulting (one-third of his list) seek his assistance four or more times a year and cause about 80% of the calls on his service. Respiratory diseases caused practically a quarter of all consultations, and chronic bronchitis was the single disease most often requiring medical attention (7% of all consultations). Five per cent of consultations were given for reasons other than sickness, including routine maternity examinations, general medical examinations, and advising on social and domestic matters.

## SMOKING AND CANCER

This last month has seen an outburst of statements on the vexed problem of the association between cigarette smoking and cancer of the lung. The Government, the tobacco manufacturers and the tobaccoists have all burst into print on the subject. The Minister of Health

has announced that "the Government will take such measures as are necessary to ensure that the public is kept informed of all the relevant information as and when it becomes available". He then proceeded to give a masterly example of tight-rope walking which would have filled with envy the superb acrobats in the Russian Circus now appearing in the Metropolis. "Two cancer-producing agents have been identified in tobacco smoke, but whether they have a direct role in producing lung cancer, and if so what, has not been proved." The extent of the problem should be neither minimized nor exaggerated. The upshot of it all is that in the present state of knowledge a national publicity campaign would not be appropriate.

The tobacco manufacturers, who have placed a fund of \$250,000 at the disposal of the Medical Research Council for research into the cause of cancer, claim that the evidence on the possible relationship of cancer of the lung and smoking "is conflicting and very incomplete". The suggestion that smoking may be a contributory cause is based mainly on certain statistical inquiries, and statistics by themselves "can never constitute proof of a cause-and-effect relationship". The tobaccoists take the simple line that "more than 30 different articles of popular consumption have been accused of being a source of cancer, and in every case ultimate experience has eliminated them. Now that tobacco has come round into this category what we need is more research and fewer premature statements."

#### FORTIFYING FLOUR

The prolonged controversy between the advocates of National Flour of 80% extraction, and 70% extracted flour enriched by the addition of aneurine, nicotinic acid and iron, has been officially settled by the Government's accepting the conclusion of an expert panel which it appointed to investigate the problem last year. The conclusion of the panel was that there was no ascertainable difference between these two flours which could significantly affect the health of the population in any foreseeable circumstances. One of the factors that weighed with the panel in reaching their conclusion was the evidence of demand by the public for white bread and white flour, and they were impressed by the claim of the millers that if people can obtain only bread made from 80% extraction flour they may eat less bread and more of other manufactured foods which may not be so nourishing. The view is expressed that "a policy of enrichment provides a realistic means of ensuring that the greatest nutritional benefit is derived from flour", but it recommends that flours of higher extraction rate, containing no fewer nutrients than the enriched low-extraction flours, should also be available.

#### MEDICAL OFFICERS OF HEALTH CENTENARY

The Society of Medical Officers of Health has been celebrating the centenary of its foundation on May 13, 1856. The president of the Society in its centenary year is Dr. C. F. White, who has just retired from the post of medical officer of health to the City of London. This is a happy choice, as the first president of the Society was Dr. (later Sir) John Simon, who was the first medical officer of health of the City of London, as well as the outstanding figure in the history of preventive medicine in this country. The celebrations included a centenary dinner given by the Lord Mayor of London in the Mansion House, with all the traditional ceremony of this ancient city. The centenary oration was delivered by Lord Adrian, O.M., Master of Trinity College, Cambridge, and a former President of the Royal Society. At the opening meeting of the celebrations the honorary fellowship of the Society was bestowed upon Dr. Huntington Williams, health commissioner of Baltimore. London, June 1956. WILLIAM A. R. THOMSON

## OBITUARIES

DR. F. J. BURROWS, 86, a former Medical Officer of Health for Huron County, Ont., died on June 2. He was born in Westminster Township, Middlesex County, Ont., and graduated from the University of Toronto in 1893. Dr. Burrows practised at Seaforth, Ont., for 44 years, until 1938 when he became Medical Officer of Health for Huron County. He retired in 1948.

He is survived by two daughters and two sons.

DR. HOWARD C. DIXON, 70, a general practitioner at Medicine Hat, Alta., until his retirement in 1954, died in the Calgary General Hospital on May 8. He was born at Maple Creek, Sask., and graduated from McGill University in 1913. During World War I he served overseas with the Canadian Army Medical Corps, attached to No. 3 General Hospital Unit (McGill). He moved to Medicine Hat in 1920.

He is survived by his widow, a daughter and three sons.

DR. ADOLPHE DROUIN, a specialist in ear, throat and eye diseases at Ottawa, died on May 28 at the age of 74. He was born at Ste. Famille, on the Island of Orleans, Que., and graduated from Laval University, Quebec, in 1906. After doing postgraduate work at the Universities of Lyons and Paris, he set up practice in Ottawa in 1918.

Dr. Drouin is survived by a brother and four sisters.

DR. SAMUEL ESHOO, 81, who for many years was in charge of the mission hospital at Ethelbert, Man., died at St. Vital, Man., on June 4. Dr. Eshoo was born in Persia and came to Canada in 1884. After graduating from Queen's University, Kingston, Ont., he returned to Persia, where he worked in an American mission at Tabriz for 17 years. In 1920 he returned to this country and took up his appointment at Ethelbert. He retired in 1942.

Dr. Eshoo is survived by his son and two daughters.

DR. JAMES LAWRENCE HUFFMAN, 79, a former general practitioner at London, Ont., died there on May 24. Dr. Huffman was born at Aylmer, Ont., and graduated from the University of Toronto in 1902. Before going to London, he practised at Arkona, Ont., for 17 years. In 1952 the University of Toronto conferred on him an honorary degree of doctor of medicine in recognition of his 50 years of practice.

Dr. Huffman is survived by his widow and two daughters.

DR. SIGURD JULIUS JOHANNESON died in Winnipeg on May 12, at the age of 88. Born in Iceland, he graduated from the National Medical University, Chicago, in 1907 and registered with the College of Physicians and Surgeons of Manitoba in 1922. After practising for several years in Icelandic communities in Western Canada, he moved to Winnipeg and practised there until his retirement. He was well known as an eminent Icelandic language poet and journalist. He published three volumes of poems, many of which were written for children.

R.M.

DR. JOHN EDWARD LAXTON, Director of Communicable Diseases and Epidemiology in the Department of Public Health, Toronto, died on May 27. He was born in Toronto and graduated from the University of Toronto in 1925. He later became a Fellow of the Royal College of Physicians and Surgeons of Canada.

Dr. Laxton is survived by a son, a brother and two sisters.



DR. JOHN ALEXANDER LUNDIE, a general practitioner at Verdun, Que., for 30 years, died at his home on May 29. Dr. Lundie was born in Montreal. He graduated from McGill University and afterwards studied at Edinburgh University.

He is survived by his widow and a son.

DR. WILLIAM WARREN LYNCH, who practised medicine at Sherbrooke, Que., for more than 50 years, died in May, at the age of 80. He was born at Knowlton, Que., and graduated from McGill University in 1898. After doing postgraduate work in England, he set up practice in Sherbrooke and later became chief surgeon at the Sherbrooke Hospital. He retired from the position in 1948.

Dr. Lynch is survived by his widow and son.

DR. HUGH ALLAN McCULLOUGH, 91, an eye surgeon in Toronto for over 40 years, died at Georgetown, Ont., on May 16. Dr. McCullough was born at Georgetown and graduated from the University of Toronto in 1890.

He is survived by several nieces and nephews.

DR. EDMOND POTVIN, 57, chief of the Pædiatric Service at the Hôtel-Dieu St. Vallier, Chicoutimi, Que., died at his home in Chicoutimi on April 28. He was born at Chicoutimi and graduated from Laval University, Quebec, in 1925. Dr. Potvin was the founder and organizer of the pædiatric service at Hôtel-Dieu St. Vallier. He was a Fellow of the Royal College of Physicians and Surgeons of Canada and Professor of Pædiatrics at Laval University.

He is survived by his widow and a son.

DR. GEORGE SUTHERLAND, 84, a pioneer general practitioner on the West Coast, died at Vancouver General Hospital on May 30. Dr. Sutherland, who graduated from the University of Toronto in 1898, opened the first hospital in Port Coquitlam, B.C., in 1911. In 1926 he moved to Vancouver where he practised until he became ill, two months before his death.

He is survived by his widow and two sons.

DR. FREDERICK C. A. WALTON died in New Westminster, B.C., on May 18, just three days short of his 80th birthday. Born in Barbados, B.W.I., he graduated from Manitoba Medical College in 1905 and practised at Mather, Man., until 1911 when he went to Winnipeg. When the First World War broke out he became a captain in the Canadian Army Medical Corps and served in England until the close of the war. He continued to practise in Winnipeg until 1950 when he retired to New Westminster. He was Pensions Examiner with the D.V.A. and was surgeon to the St. Andrews and St. John's Ambulance Societies.

He is survived by his widow, three sons, Dr. C. H. A. Walton, Winnipeg, Dr. F. A. Walton in New Westminster and George in Montreal, and a daughter, Mrs. Dusang, of Kenora, Ont. R.M.

DR. EDWARD CORRY WILFORD, 72, a former medical missionary in China, died in the East General Hospital, Toronto, on June 5. He was born at Blyth, Ont., and graduated from the University of Toronto in 1908. Dr. Wilford spent 40 years with the West China Mission of the United Church of Canada, serving as superintendent and surgeon in several hospitals and as a professor of surgery at West China Union University. He returned to Toronto in 1949 to set up private practice.

He is survived by his widow, one daughter and a son.

## ABSTRACTS from current literature

### MEDICINE

#### Experimental Air-Borne Infection. A Comparison of Different Masks in the Protection of Rabbits Against Inhalation Infection with Tubercle Bacilli.

S. ABRAMSON: *Am. Rev. Tuberc.*, 73: 315, 1956.

Under given experimental conditions, rabbits wearing gauze face masks, comparable in design and application with a type commonly worn by human beings, were protected against the inhalation of 77% of the pathogenic tubercle bacilli present in the air of their environment. The importance of employing these masks as filters rather than as deflectors is emphasized. It is inferred that the gauze face masks might reduce the number of pathogenic particles available for actual deposition in the alveoli sufficiently to be of value in the prevention of clinical disease. Neither various degrees of wetting after use, nor repeated laundering, appeared to have a consistent effect upon the protective capacity of the gauze face masks.

A commercially available airtight respirator, with chemically treated felt filter, was 97.6% efficient in protecting rabbits under comparable conditions of intense exposure to air-borne infection. A gauze filter, employed in the same respirator, failed to provide any protection. The depth and frequency of respiration apparently played a significant role in influencing the relative efficiency of these protective devices.

S. J. SHANE

#### Serum Lipids in Human Atherosclerosis.

J. C. PATERSON, B. R. CORNISH AND E. C. ARMSTRONG: *Circulation*, 13: 224, 1956.

An attempt has been made to determine the relationship between the levels of some of the serum lipids and progression of the human atherosclerotic process. The serum lipids are estimated serially during life in 800 patients permanently confined to a hospital and the severity of atherosclerosis is evaluated when patients die and come to autopsy. To date, there have been 50 fatalities in the series.

The results of this preliminary evaluation make a very poor case for the effects of certain serum lipids on the progression of the disease. Elevations of the cholesterol-phospholipid ratio and the S<sub>10-12</sub> class of lipoproteins have been the only derangements that showed any suggestive atherogenic effects, but even these were not consistent. The other lipid fractions, notably the total serum cholesterol and the S<sub>12-20</sub> and the S<sub>20-100</sub> classes of lipoproteins, have not shown any significant relationships, when compared with the degree of atherosclerosis seen at autopsy. These latter findings contrast sharply with those of others who compared the serum lipid picture with the clinical signs of the disease. The project is continuing.

S. J. SHANE

#### Lymph Node Tuberculosis in Neck, Axilla, and Groin.

C. W. LESTER AND J. M. JONES: *Am. Rev. Tuberc.*, 73: 229, 1956.

These authors have studied tuberculosis of the lymph nodes of the neck, axilla and groin in 66 patients treated since the advent of antimicrobial therapy. More than half of these patients had no demonstrable lesions elsewhere, and only 2 had lymph node disease in the area draining a superficial infection. Pulmonary lesions, active at the time, or having previously had prolonged and successful treatment, were present in 25 instances.

Treatment was based on a consideration of the changing pathology of this disease. The acute phase is treated by bed rest, general supportive measures, and antimicrobial therapy until the lesion has become stationary. Any remaining large nodes are removed surgically. If the

disease is chronic when first seen, antimicrobial therapy is used for approximately three weeks, or as much longer as the nodes continue to shrink, and is then followed by the surgical removal of any remaining nodes. One exception to this rule is the presence of fluctuation in a mass of nodes. In such a case, operation is performed at once to forestall spontaneous rupture of the cold abscess, with consequent secondary infection in the wound. When an active pulmonary lesion is present, the treatment is directed to this first; when this lesion is controlled, any palpable lymph nodes are removed. When surgery for the pulmonary lesion is contemplated, the lymph node operation is performed first. Antimicrobial therapy is continued after operation as long as indicated, usually until the wound has healed.

X-ray treatment, once popular, has largely been replaced by antimicrobial therapy. If sinuses persist after the removal of all the caseous material, x-ray treatment is used, especially when the organism is drug-resistant. Irradiation is non-specific therapy, but may be quite effective under these conditions. S. J. SHANE

#### Clinical Value and Significance of Unipolar Right Arm Lead in Hypertension.

D. GROSS: *Am. J. M. Sc.*, 231: 125, 1956.

The unipolar right arm lead and thoracic lead  $V_4$  were systematically used to study the endocardial and epicardial surface potentials of the anterolateral wall of the left ventricle in normal cases, in hypertension and in bundle branch block. Definite correlations could be established between the electrocardiographic aspects of VR and  $V_4$  leads. The direction of the T wave in these leads is opposite. In cases of normal activation of the left ventricular wall, in the initial stages of hypertension, and in cases of right bundle branch block T<sub>VR</sub> is negative and T<sub>4</sub> is positive, whereas in advanced stages of hypertension and in cases of left bundle branch block T<sub>VR</sub> is positive and T<sub>4</sub> is negative. In hypertension five different patterns were established according to the appearance of lead VR. Each pattern was correlated with the pertinent clinical data, roentgenological heart size, position of the electrical axis and the corresponding strain index. The VR pattern was directly correlated with the severity of myocardial damage caused by hypertension. Patterns No. 1 and 2 indicated initial, and patterns No. 4 and 5 advanced stages of myocardial involvement. The unipolar right arm lead, and especially in combination with thoracic lead  $V_4$ , provides useful information regarding the condition of the left ventricular myocardium in cases of hypertension. S. J. SHANE

#### Virulence for Guinea Pigs of Tubercle Bacilli Isolated from Pulmonary Lesions Resected During Chemotherapy.

J. P. KAZLOWSKI *et al.*: *Am. Rev. Tuberc.*, 73: 266, 1956.

Observations on the virulence of tubercle bacilli resistant to isoniazid and certain other drugs indicate that many isoniazid-resistant cultures become partially or completely attenuated, as measured by ability to produce progressive tuberculosis when inoculated subcutaneously into guinea pigs. Previous reports have dealt principally with bacilli obtained from sputum and with stock laboratory strains of *M. tuberculosis*. The present report concerns bacilli recovered directly from pulmonary tuberculous lesions resected from patients. Tubercle bacilli isolated from 21 of 22 resected pulmonary lesions from 8 patients who had received prolonged combined antimicrobial therapy, including isoniazid, were attenuated for guinea pigs. The strains of tubercle bacilli, while resistant in some degree to isoniazid, in 14 cases showed variation in degree of *in vitro* susceptibility to streptomycin and PAS, as well as to isoniazid.

In all instances, however, the strains obtained from the resected lesions were resistant to at least one of these three drugs. Four of five lesions from two patients yielded isoniazid-susceptible bacilli with slight or no virulence for guinea pigs.

These results suggest that, for undetermined reasons, isoniazid may alter the ability of tubercle bacilli to produce progressive tuberculosis in guinea pigs, but that the phenomenon is by no means confined to isoniazid-resistant bacilli.

The clinical and bacteriological findings in one patient suggested that the observed decrease in the virulence of his bacilli for guinea pigs did not result in a similar decrease in the virulence of these organisms for this patient. S. J. SHANE

## SURGERY

#### Roentgenologic Diagnosis of Ruptured Spleen.

C. C. WANG AND L. L. ROBBINS: *New England J. Med.*, 254: 445, 1956.

An ordinary flat-plate radiograph of the abdomen may be a definite diagnostic aid in confirming clinical suspicion of a ruptured spleen and lead to an early life-saving operation, as is pointed out in this series of 43 cases from 1945 to 1955, seen at the Massachusetts General Hospital.

Of those with radiographs, 60% showed evidence of enlargement of the splenic shadow. Surrounding organs, such as gas-filled stomach, colon and left hemidiaphragm, may be helpful in delineating the spleen. Enlargement of the lienal shadow may be due to subcapsular or localized collection of blood outside the organ.

This technique is, of course, valuable in other acute abdominal injuries and it should be realized that a collection of retroperitoneal blood around an organ or psoas shadow is likely to obliterate the outline, while an intracapsular hematoma, for example, may clarify the splenic outline. As in osseous structures, a unilateral asymmetry may be of diagnostic significance and hence such findings as kidney displacement or obscure renal or psoas shadows are of importance.

Other findings such as slight elevation of the left hemidiaphragm, especially with limitation of movement of fluoroscopy, localized indentation or serration or the greater gastric curvature and fractured ribs, must all be evaluated. ALLAN M. DAVIDSON

#### Soft-Tissue Coverage for Injuries to the Foot and Leg.

H. CONWAY AND R. B. STARK: *Ann. Surg.*, 143: 37, 1956.

Indications for operative skin coverage are reviewed, and various uses of advancement, sliding and, in particular, cross-leg flaps are considered. The authors also suggest several methods not in common usage which may be of practical value.

The histamine wheal test to determine the adequacy of circulation is advocated as a means of minimizing hospitalization. A rubber-shod intestinal clamp is applied to the base of the pedicle, after which histamine is applied to several scarified areas, both on the flap and as controls on both legs at the same level. Appearance of the wheal in eight minutes indicates vascular sufficiency and the pedicle may be transected with impunity.

As is more commonly practised now, the authors advocate coverage of the under surface of the pedicle up to the recipient area, as well as the donor site, with a thick-split graft. This immediate coverage cuts down postoperative sepsis.

The use of casts designed a day or two before operation and then removed was found to produce better immobilization of the cross-leg flap. Reference is also made to change of dressings through a window in the cast rather than complete removal of the latter.

ALLAN M. DAVIDSON



**Traumatic Diaphragmatic Hernia.**W. F. BUGDEN, P. T. CHU AND J. E. DEL MONICO, JR.:  
*Ann. Surg.*, 142: 851, 1955.

Because of the type of bodily trauma now common, traumatic diaphragmatic hernia is becoming increasingly important. Early recognition is very desirable because delay results in a greater mortality, secondary to incarceration and strangulation. Of strangulated diaphragmatic herniae 90% are traumatic in origin. There may be no immediate signs of this type of herniation, so that the doctor attending the acutely injured must bear the diagnosis in mind and be quick to assess accurately newly developed physical findings. If surgical correction is undertaken promptly, the prognosis is good.

Typical signs and symptoms may be absent but if the patient has a suitable history, pain in the chest, and evidence of disturbed cardio-pulmonary physiology, the clinician should be suspicious. Whenever the left diaphragm seems higher than the right in a patient with a history of suitable trauma, rupture of the diaphragm is a distinct possibility. Barium swallow or simple passage of a stomach tube prior to fluoroscopy may confirm the diagnosis. As might be expected, the liver offers a considerable degree of protection, so that this condition is a great deal commoner on the left side.

The transthoracic approach leads to simple reduction of the herniated organs and facilitates repair with interrupted non-absorbable sutures. Closed water-seal drainage is established through another interspace, and the thoractomy wound tightly closed.

ALLAN M. DAVIDSON

**Treatment of Metastatic Pulmonary Malignancy.**C. R. KELLEY AND H. T. LANGSTON: *J. Thoracic Surg.*, 31: 298, 1956.

The writers feel that the presence of pulmonary metastases should not be considered necessarily indicative of a fatal prognosis. The surgical excision of metastases in the lung has been shown to be technically feasible and productive of a significant group of long-term survivors in selected cases. All such cases should be carefully evaluated; where the primary lesion can be shown to be well controlled, and no other metastases can be found, thoracotomy and excision of the metastatic lesions are indicated. It must also be realized that the mere history of former malignancy, in the presence of a pulmonary lesion, does not necessarily indicate the latter's metastatic nature, because in a significant number of cases such a pulmonary lesion actually is a second primary tumour. The differentiation between these two situations is clinically very difficult, if not impossible. Even though failing occasionally, histological study of these lesions remains the only reasonably satisfactory approach to the question. In the final analysis, however, only time can tell whether judgment in any given case was good or bad.

S. J. SHANE

**Comparison of Some Newer Anticoagulants.**L. BRUNTON, L. LOWENSTEIN AND L. SHAPIRO: *A.M.A. Arch. Surg.*, 72: 153, 1956.

An investigation of cyclocoumarol (Marcumar), Warfarin sodium and bihydroxycoumarin (dicoumarol) was undertaken. Cyclocoumarol seemed most satisfactory; both Marcumar and Warfarin sodium could be given intravenously. If vitamin K is required, a dosage of 2.0 mg. is recommended. Cyclocoumarol is usually given in a dosage of 150 mg. the first day and 50 mg. the second. Long-acting anticoagulants give a smoother effect, do not have to be given so frequently and do not give the rebound effects with fresh thrombosis as compared with the short-acting drugs.

Measurement of Quick's prothrombin time seemed as satisfactory as any method for laboratory control, except when the blood must be kept for more than a few hours before the test is performed. There is no way of determining who is going to bleed while taking these anticoagulants.

BURNS PLEWES

**Testicular Adenocarcinoma with Clear Cells, Occurring in Infancy.**D. MAGNER, J. S. CAMPBELL AND F. W. WIGLESWORTH: *Cancer*, 9: 165, 1956.

From the Canadian Tumour Registry, National Cancer Institute, seven malignant testicular neoplasms occurring in infants are reported. The patients varied in age from four months to two years. Simple orchidectomy was done in all, and three also received radiation therapy. In five children there were no evidences of recurrence or metastases for periods of 16 months to 10 years. One child died of metastases in 22 months and another in eight months after operation.

The gross and microscopic findings are described; the tumours appear to represent a distinctive neoplastic group.

BURNS PLEWES

**OBSTETRICS AND GYNÆCOLOGY****Effect of Duration of Anaesthesia on Apnoea Neonatorum after Cæsarean Section.**J. OZINSKY AND G. G. HARRISON: *Brit. M. J.*, 1: 725, 1956.

In cases of Cæsarean section, provided that the child is extracted within 20 minutes of induction of anaesthesia of the mother, the authors feel that a calm, unhurried approach by the operating team will not adversely affect the child; 102 infants born by Cæsarean section were investigated regarding the correlation between the duration of anaesthesia to which their mothers were exposed and the delay in breathing which the infants showed. When the duration of anaesthesia did not exceed 20 minutes, no such correlation was observed.

ROSS MITCHELL

**RADIOLOGY****Pulmonary Ossification in Patients with Mitral Stenosis.**W. WHITAKER, A. BLACK AND A. J. N. WARRACK:  
*J. Fac. Radiologists*, 7: 29, 1955.

In recent years multiple calcified nodules in the lungs of patients with mitral stenosis have been reported in radiological literature. This association was first described by Salinger in 1932 but very few cases have been reported in the literature. By 1949 there were fewer than 40 cases. The present authors report seven cases and discuss evidence relating pulmonary ossification to abnormal pulmonary blood pressure in patients with mitral stenosis. The present series confirms previous observations that small intra-alveolar nodules of bone occur in the lungs of patients suffering from mitral stenosis and that these nodules are found predominantly in the lower lobes of the lungs and do not involve the apices. The opacities which these nodules of bone produce on radiological examination must be differentiated from those which occur in patients with pneumoconiosis, miliary tuberculosis, sarcoidosis, leukaemia, Hodgkin's disease, lymphangitis carcinomatosa and infection with *Histoplasma capsulatum*. Association of these conditions with mitral stenosis must be extremely rare. Pulmonary ossification occurs in patients with mitral stenosis who have abnormally high pulmonary blood pressure which predisposes them to attacks of pulmonary oedema, but since such pressures are common in patients with mitral stenosis and pulmonary ossification is rare, it is apparent that other factors must be involved in the production of pulmonary calcification. In these days of mass chest surveys the findings of multiple calcifications in the lower portions of the lungs should suggest the need for clinical examination of the heart.

CHARLES E. VAUGHAN

### The Lower Esophageal Ring.

R. SCHATZKI AND J. E. GARY: *Am. J. Roentgenol.*, 75: 246, 1956.

A ring-like narrowing of the lower oesophagus has been noted by several observers during the course of radiological examinations after ingestion of barium mixtures. The condition was considered a rare curiosity until given prominence by Schatzki and Gary who, in 1953, reported a series of cases and made radiologists generally aware of the entity which is now probably usually referred to as "Schatzki's ring".

The lower oesophageal ring is a symmetrical diaphragm, about 4 mm. thick, protruding into the lumen of the oesophagus at right angles to its wall about 4 to 5 cm. above the diaphragm. The ring is somewhat flexible and its free edge can be pushed downward by solid food with slight increase in its diameter. In the authors' cases the diameter of the opening varied from 3 to 38 mm. The lower oesophageal ring rarely is found in people under 50 years of age, sex incidence is equal, and follow-up studies indicate that the size and diameter remain constant in individual cases. It is essential that the lower oesophagus be well distended with barium to demonstrate its presence. Symptoms are related to the size of the opening, the classical symptom being dysphagia in the case of rings of small diameter while the larger rings are asymptomatic.

The cause of the ring is unknown. It is frequently associated with hiatus hernia. The authors have had 21 symptomatic cases with varying degrees of dysphagia and 64 patients in whom the ring was an incidental asymptomatic finding. Oesophagoscopy was carried out in four cases; it was negative in three and showed nothing but a symmetrical narrowing in the fourth. Surgery in one patient revealed no histological abnormality.

Patients with symptoms and a lower oesophageal ring can almost invariably get along satisfactorily with a proper understanding of their condition and the avoidance of swallowing large boluses of food. Medication and bouginage have not been therapeutically successful. It is conceivable that extreme cases may require surgical intervention.

NORMAN S. SKINNER

## DERMATOLOGY

### Nylon and Leukodermia.

M. EL ZAWAHRY: *Brit. J. Dermat.*, 68: 59, 1956.

Six cases of leukodermia developed on the skin at the left wrist under nylon straps of watches of different metals. The skin beneath the watch itself showed no change. One patient with leukodermia on the left wrist transferred the watch to the right wrist and promptly developed leukodermia there. Two of the cases developed a contact dermatitis with subsequent depigmentation.

ROBERT JACKSON

### Allergic Sensitization and Photosensitization to Phenergan Cream.

E. SIDI, M. HINCKY AND A. GERVAIS: *J. Invest. Dermat.*, 24: 345, 1955.

Promethazine hydrochloride (Phenergan) cream is apparently widely used in France. The authors report 262 cases of dermatitis where they had reason to believe that the cream was a causal or contributory factor. In 128 patients there were positive skin tests. Contact dermatitis from Phenergan cream has been reported many times before, but the authors add other interesting aspects of this condition.

Oral administration of Phenergan in these patients caused a severe recurrence of the dermatitis. They found that Phenergan lotion caused fewer cases of sensitization. Photosensitization of the most severe and protracted type may develop following sensitization from Phenergan, applied topically or taken internally.

In some cases the patient must avoid ordinary daylight for as long as several weeks, and the photosensitization may last several years.

The possibility of cross-sensitization was also studied. It was observed frequently between Phenergan and Multergan, but only rarely between phenindamine (Thephorin) and tripeleminamine (Pyribenzamine). Thirty per cent of their patients were sensitive to p-phenylenediamine and some also to local anaesthetics of the procaine series and to sulfonamides. Three of 11 Phenergan-sensitive patients also gave positive tests to chlorpromazine. The authors state that this is easily understood because of the great chemical similarity.

The authors advise their Phenergan-sensitive patients to avoid antihistamine ointments and oral or parenteral use of certain antihistamines, and to beware of the possibility of sensitization to local anaesthetics of the procaine series, hair dyes and sulfonamides.

ROBERT JACKSON

### Kveim Test in Sarcoidosis and Tuberculosis.

M. SONES *et al.*: *J. Invest. Dermat.*, 24: 353, 1955.

The authors studied the Kveim test for sarcoidosis in 24 patients with typical clinical, laboratory and histological findings of sarcoidosis, and 43 other patients including 19 with active pulmonary tuberculosis. Their criterion of a positive test was the histological demonstration of epithelioid cell tubercles with or without fibrinoid necrosis, eight weeks after intradermal injection of the test material. Positive results were obtained in 27% of patients with sarcoidosis, in 19% of patients with tuberculosis, in 44% of patients with suspected sarcoidosis and 14% of controls. The authors conclude that the Kveim test should not be used as a criterion for diagnosing sarcoidosis.

ROBERT JACKSON

## THERAPEUTICS

### Metacortandracin (Meticorten) in the Treatment of Disseminated Lupus Erythematosus and Periarteritis Nodosa.

C. L. STEINBERG AND A. ROODENBURG: *Ann. Int. Med.*, 44: 316, 1956.

Nine patients, six with disseminated lupus erythematosus and three with periarteritis nodosa, have been treated with metacortandracin. One patient with periarteritis nodosa died while under treatment. The autopsy showed extensive arterial involvement, both visceral and peripheral. The most remarkable feature in the histological study was the lack of inflammatory process noted in the diseased arteries. The inference from these studies is that, if this patient had been treated in the early phase of the disease, the outcome would have been more favourable. The other two patients with periarteritis nodosa have been converted from very ill people to workers.

All six patients with disseminated lupus erythematosus had previously been treated with either cortisone or corticotrophin. All have done much better with metacortandracin. However, in no instance have the L.E. cells disappeared either from the bone marrow or from the peripheral blood. The improvement in the blood picture in one case was marked. All six patients carry on their usual activities with little or no restriction. The capacity to tolerate a normal diet, without salt restriction or the addition of the large, stomach-disturbing doses of potassium required with the use of other steroids, is appreciated by these people.

The initial dose was 30 mg., i.e. 10 mg. every eight hours in all cases except one. The dose was decreased by 5 mg. every six days until the smallest amount required for maintenance was reached. It was usually 15 to 20 mg. per day.

All of these patients with the exception of one have been observed under treatment for from 60 to 120 days.



Although the short-term treatment has been favourable, more time will have to elapse before a conclusive opinion can be reached as to long-term treatment of the collagen diseases with this new compound.

S. J. SHANE

**Treatment of the Low-Salt Syndrome in Congestive Heart Failure by the Controlled Use of Mercurial Diuretics.**

A. L. RUBIN AND W. S. BRAVEMAN: *Circulation*, 13: 655, 1956.

The two cases reported typify the group of cardiac patients that have fluid retention, hyponatraemia, and hypochloræmia. A positive water balance is a consistent feature in these cases. Treatment poses a difficult problem. In most instances, the administration of hypertonic saline solution in an attempt to correct the hyponatraemia does not improve the clinical status of these patients. It often results in a further weight gain and the progression of already distressing symptoms.

Responsiveness to mercurial diuretics can be restored by using Diamox and ammonium chloride to produce the rise in plasma chloride concentration necessary to provide for the presentation of an adequate chloride load to the renal tubules. An empirical observation has been that this state is achieved when the urinary chloride concentration has risen to over 40 mEq. per litre.

The significant characteristic of the mercurial-induced diuresis that occurred, once the necessary hyperchloræmia has been achieved, was that each litre of urine had a considerably lower sodium content than the extracellular fluid. As a result, with fluid intake restricted, the sodium concentration of the extracellular fluid rose toward normal. Striking clinical improvement occurred in association with the diuresis and the return to normal of the plasma sodium concentration.

Producing an acidosis in an already azotæmic patient is potentially hazardous, and the necessity for continued close clinical and laboratory observations cannot be overemphasized. However, with such observations, the acidosis has been without ill effect. The degree of acidosis and rise in plasma chloride concentration necessary to restore a responsiveness to mercurial diuretics varies with each patient. The essential indication that the necessary acidotic state has been achieved is a rise in urinary chloride concentration.

The effectiveness of this therapeutic approach, directed primarily toward increasing the sodium content of the extracellular fluid, supports the postulate that the mechanism for development of this syndrome is primarily fluid retention with extracellular fluid expansion, and not salt depletion. In keeping with this view is the role that mercurial diuretics play in the success of this regimen, when heretofore they have been alleged to be a significant causative factor in producing the "low-salt" syndrome.

S. J. SHANE

**Clinical Evaluation of a Rectal Mercurial Diuretic in Chronic Congestive Heart Failure.**

N. MAKOUS *et al.*: *Am. J. M. Sc.*, 231, 86, 1956.

In spite of recent progress in mercurial diuretic therapy, the problem of self-administration remains. The development of preparations that can be given subcutaneously and orally has constituted a significant advance. However, there are patients in whom neither of these dosage forms has been entirely satisfactory, because of inconvenience, side-reactions, or lack of potency by these routines of administration. Recently, mercaptomerin sodium was made available in suppository form; early clinical trials were encouraging, the suppositories appearing effective and free from undesirable side-effects. The purpose of this study was to evaluate the usefulness of these suppositories in patients with chronic congestive heart failure, to determine whether they could be used for long periods without irritation or toxicity.

Twenty-three patients suffering from arteriosclerotic, hypertensive, rheumatic, luetic, congenital and undiagnosed forms of heart disease were the subjects of this study. All were considered to be in chronic congestive heart failure, were digitalized, and had been receiving parenteral mercurial diuretics for at least three months prior to this study.

In patients who had required one or more injections of a mercurial diuretic a week during a control period, one suppository a day reduced the parenteral mercurial requirement by more than half. Nineteen of the 23 required less than one injection weekly during suppository therapy; 14 required less than one monthly, and 9 required no parenteral mercury. The suppositories appeared to have no local toxic or irritative effects; no-one showed either subjective or objective evidence of rectal irritation, in spite of prolonged use.

Mercaptomerin suppositories appear effective in reducing or eliminating the need for parenteral mercury in many patients with chronic congestive heart failure.

S. J. SHANE

**Clinical Evaluation of Diuretic Mersoben.**

R. H. CHANEY AND R. F. MARONDE: *Am. J. M. Sc.*, 231: 26, 1956.

The effectiveness of mercurial diuretics in the treatment of congestive heart failure has been well established. By inhibiting the reabsorption of salt by the renal tubules, they promote loss of oedema fluid, with corresponding diuresis, loss of body weight and clinical improvement. Because of the potentially toxic action of organic mercurials on the kidneys and the heart, there has been a continuing search for mercurial diuretics of less toxicity and greater potency. One of the more promising of these is Mersoben, an aliphatic compound containing a relatively small amount of mercury.

In this study, 85 patients with chronic cardiac disease were given single injections of Mersoben to determine its diuretic action and side-effects. Practically all of these patients had been receiving Mercuhydrin by injection once or twice weekly for many weeks, so that it was possible to compare the two drugs.

The results indicated that Mersoben is a potent diuretic with minimal side-effects, comparing favourably with Mercuhydrin. In addition, since it contains less mercury than the latter drug, it is potentially less toxic. The authors noted no evidence of local, renal or systemic ill-effects, except infrequent local pain and a rare sensitivity reaction.

S. J. SHANE

**Myocarditis in Viral (Epidemic) Hepatitis.**

O. SAPHIR, G. D. AMROMIN AND H. YOKOO: *Am. J. M. Sc.*, 231: 168, 1956.

It is well known that myocarditis may constitute a serious complication of virus diseases such as poliomyelitis, measles, mumps, viral pneumonias, encephalitis and infectious mononucleosis. There are only a few reports of the occurrence of this serious complication in viral hepatitis.

This study is based on a re-examination of the clinical records and necropsy findings in six cases of viral (epidemic) hepatitis, observed between the years 1949 and 1955. Among the six patients dying with acute viral hepatitis there were four with acute myocarditis. Three died after a relatively short course of the disease, and two of these had electrocardiographic changes which, in retrospect, can well be interpreted as caused by myocarditis. The changes in the myocardium were characterized by minute foci of necrosis, and a more diffuse serous inflammation. In three of these cases, the bundle of His was involved, with necrosis of isolated fibres, hæmorrhage and an acute inflammatory exudate.

It would appear, therefore, that myocarditis is a common complication of viral hepatitis, and that electrocardiographic studies are indicated in every patient with the disease.

S. J. SHANE

## FORTHCOMING MEETINGS

### CANADA

INDUSTRIAL SECTION, ONTARIO MEDICAL ASSOCIATION, AND INDUSTRIAL MEDICAL ASSOCIATION OF THE PROVINCE OF QUEBEC, Combined Annual Meeting, Hamilton, Ontario. (Dr. Glenn Sawyer, Executive Secretary, Ontario Medical Association, 244 St. George Street, Toronto, Ont.) September 26-28, 1956.

### UNITED STATES

INTERNATIONAL CONGRESS OF HEMATOLOGY, Boston, Massachusetts. (International Society of Hematology, New England Center Hospital, Harrison Avenue at Bennett Street, Boston 11, Mass.) August 26-September 1, 1956.

SIXTH INTERNATIONAL CONGRESS OF BLOOD TRANSFUSION, Boston, Massachusetts. (Professor I. S. Ravdin, President, New England Medical Center, Harrison Avenue, Boston 11, Mass.) August 29-September 2, 1956.

FIRST INTER-AMERICAN CONFERENCE ON OCCUPATIONAL MEDICINE AND TOXICOLOGY, Miami, Florida. (Dr. Homer F. Marsh, Dean of the School of Medicine, University of Miami, Fla.) September 3-7, 1956.

INTERNATIONAL COLLEGE OF SURGEONS, 10th International Congress, Chicago, Illinois. (Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill.) September 9-13, 1956.

INTERNATIONAL CONGRESS OF CLINICAL CHEMISTRY, New York, N.Y. (Mr. J. C. Reinhold, 711 Maloney Building, Hospital of the University of Pennsylvania, Philadelphia 4, Pa.) September 9-14, 1956.

### OTHER COUNTRIES

BRITISH MEDICAL ASSOCIATION, Annual Meeting, Brighton, England. (The Secretary, B.M.A. House, Tavistock Square, London, W.C. 1, England.) July 5-13, 1956.

FIFTH INTERNATIONAL CONGRESS ON GASTROENTEROLOGY, London, England. (Mr. Hermon Taylor, 14 Upper Harley Street, London W.1.) July 18-21, 1956.

INTERNATIONAL SYMPOSIUM ON MEDICAL-SOCIAL ASPECTS OF SENILE NERVOUS DISEASES, Venice, Italy. (Secretariat, International Association of Gerontology, Viale Morgagni 85, Florence, Italy.) July 20-21, 1956.

SIXTH INTERNATIONAL PÆDIATRIC CONGRESS, Copenhagen, Denmark. (Dr. J. Vesterdal, Domus Medica, Kristianiagade, Copenhagen.) July 22-27, 1956.

EIGHTH INTERNATIONAL CONGRESS OF RADIOLOGY, Mexico City, Mexico. (Secretariat, I.C.R., Calle del Oro, 15, Mexico, D.F.) July 22-28, 1956.

20TH INTERNATIONAL PHYSIOLOGY CONGRESS, Brussels, Belgium. (Professor J. Reuse, Faculté de Médecine et de Pharmacie, 115 Boulevard de Waterloo, Brussels.) July 30-August 5, 1956.

FIRST INTERNATIONAL CONGRESS OF HUMAN GENETICS, Copenhagen, Denmark. (The University Institute for Human Genetics, Tagensvej 14, Copenhagen.) August 1-6, 1956.

EIGHTH INTERNATIONAL CONFERENCE OF SOCIAL WORK, Munich, West Germany. (J. R. Hoffer, 345 East 46 Street, New York 17, N.Y.) August 5-10, 1956.

WORLD FEDERATION FOR MENTAL HEALTH, Ninth Annual Meeting, Berlin, West Germany. (The Secretary, W.F.M.H., 19 Manchester Street, London, W. 1, England.) August 12-18, 1956.

FOURTH INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Cologne, West Germany. (Dr. Murray Kornfeld, American College of Chest Physicians, 112 Chestnut Street, Chicago 11, Ill.) August 19-23, 1956.

SECOND INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, Copenhagen, Denmark. (Dr. B. Strandberg, Koebenhavns Amts Sygehus i Gentofte, Hellerup, Denmark.) August 20-24, 1956.

## PROVINCIAL NEWS

### ALBERTA

Federal, provincial, civic and hospital officials spoke at the opening of the new nurses' wing of the Calgary General Hospital. The address of the Honourable Paul Martin, who had originally planned to be present, was presented by Dr. Gordon Wride of the Federal Department of Health, while the Minister's greetings were carried by tape recorder.

The auditorium, one of the largest in Calgary, was filled to capacity for the opening function. After the ceremony the wing was open for public inspection. The building contains some of the best in modern furnishing, much of the latter being donated by private citizens.

The opening of this structure marks the completion of phase four of the "Five-Step" master plan for the development of the General Hospital, conceived in 1953. The first three steps included finishing the new hospital building and its occupancy, renovating the maternity wing, and providing a new laundry and power house.

Despite existing extensions, a recent survey by the Calgary Hospital Board shows that the total of 1,123 beds at present available is 289 short of the number required to serve a city of Calgary's population. The situation is now under consideration.

The recent announcement of a federal grant of \$144,000 to assist in expanding the Rosehaven Hospital at Camrose was enthusiastically received. Rosehaven takes the surplus from the Provincial Mental Hospital at Ponoka, and any move to decrease the great shortage of accommodation for mental patients is most welcome.

Interest in the proposed federal health grants has been widespread, and not only among members of the medical profession. Dr. E. F. Donald, President of the College of Physicians of Alberta, recently addressed the Edmonton Ministerial Association on this subject and also served on a panel, at the Third Annual Conference of the Alberta Council of Personnel Associations, discussing "The Effects of a Federal-Provincial Health Scheme on Business and Industry".

Dr. Crosby Johnston, the present Assistant Medical Superintendent at the University of Alberta Hospital, will take over the position of Administrator of the Calgary General Hospital late in August, replacing Dr. L. O. Bradley who is going to the Winnipeg General Hospital on September 1.

Dr. C. E. Holmes, who following service in the R.C.A.M.C. during the last war practised in Drumheller for a number of years, has joined the staff of the Department of Radiology at the University of Alberta Hospital. Dr. Holmes trained at the Sinai Hospital in Boston and at the Chicago Clinics. He has taken the place of Dr. G. C. Copestake in the Cardiovascular Unit, Dr. Copestake having moved to London, Ont.

The Cardiovascular Unit was established in November 1953, to provide special diagnostic services in the field of heart disease to the people of Alberta. The personnel of the Unit are: Drs. R. S. Fraser, J. Dvorkin, N. Duncan, C. Ross, J. Callaghan and C. E. Holmes.

The work of the Unit is extensive and to date over 125 cardiac catheterizations have been carried out. Another increasingly frequent procedure is determination of the left atrial pressure by the bronchoscopic route.

Cardiac rounds are held once weekly and are open to any interested physician. Over 500 patients have been seen at these rounds since the organization of the unit and the volume of cardiovascular surgery has steadily increased.

Equipment for this Unit is expensive, over \$23,000 having been spent to date. The latest item is a multiple



recorder, one of two in Canada, which has five channels by which five different physiological variables can be recorded photographically at the same time.

An arterial graft bank was established about eight months ago and has proved most useful to the cardiovascular surgeons.

Operating in close co-operation with the Cardiovascular Unit is the Pulmonary Function Unit in the charge of Dr. T. H. Aaron. W. B. PARSONS

## MANITOBA

At the annual meeting of the Winnipeg Medical Society on May 17 the following officers were elected: President, Dr. Earl Stephenson; Vice-President, Dr. Athol Gordon; Secretary, Dr. J. A. Swan; Treasurer, Dr. M. H. Campbell; Trustee, Dr. J. L. Downey.

A certificate was presented to Dr. F. Hartley Smith, immediate past-president.

Life memberships were conferred on Drs. C. W. Burns, H. B. Chown, W. F. Tisdale, and T. H. Williams. The retiring president, Dr. A. R. Birt, gave an address on recent developments in dermatology. The new president was escorted to the platform by Dr. O. S. Waugh and Dr. A. T. Mathers, senior past-presidents.

The Manitoba Hospital Service Association's 17th annual report for the year ending December 31, 1955, shows that the Association is in a good position. At the close of 1955, 358,009 residents of Manitoba were enrolled, representing some 43% of the population. The M.H.S.A. maintained the leadership in Canada in terms of percentage of population covered, and in this respect ranks ninth of all Blue Cross Plans on this continent.

The Manitoba Hospital Service Association was the first Blue Cross plan incorporated in Canada.

In 1955 the Association paid the hospital accounts of 50,684 Blue Cross subscribers in the amount of \$4,517,370, which is 83.3% of earned subscriptions. Operating expenses were 9% of earned subscriptions. The contingency reserve for epidemics, emergencies and pending maternity claims was \$1,113,891 on December 31, 1955. The Association had funds invested amounting to \$1,766,000 at the end of the year.

In October 1955 Dr. A. E. Thomson, M.Sc., F.R.C.P.[C.], joined the staff as medical adviser. The Manitoba Medical Association reappointed four medical advisory committees. The Manitoba Dental Association appointed a dental advisory committee.

The provincial government in its recent session passed a bill whereby the provincial and municipal governments will undertake to pay the hospital charges established by the Hospital Rate Board for patients who are unable to pay their own accounts. There is every reason to expect that the policy of overcharging the paying patient to recover losses sustained in caring for indigent patients will now disappear.

In 1955 the Board of the Association was increased from 21 trustees to 25. The present building was occupied on July 1, 1950. The increase in enrolment necessitated a larger clerical staff; consequently, an addition to the building was completed and occupied in May 1956.

Some 80 Great Northern Railroad surgeons met in Winnipeg on May 28-29 for the biennial meeting of their Association. It represents 234 doctors in nine states and two provinces, British Columbia and Manitoba. The first day's sessions were held in the Fort Garry hotel, the second at Manitoba Medical College. On their departure the guests expressed their satisfaction over the meeting. Dr. C. W. Burns, Winnipeg, was elected president for the ensuing year.

Nearly 800 registered nurses from across Canada and abroad attended the 28th biennial meeting of the

Canadian Nurses Association in Winnipeg, June 25-29. One of the features of the meeting was a conducted tour of historic spots in greater Winnipeg. The sessions for the Association's first national conference in the West were held at the University of Manitoba.

The new surgical research laboratory of the medical school of the University of Manitoba was officially opened on May 30 by President H. H. Saunderson.

Grandview's new 16-bed hospital was opened on May 24 in the presence of 500 people by Dr. M. R. Elliott, Deputy Minister of Health and Public Welfare. The hospital contains new x-ray facilities which cost \$8,000.

Colonel T. E. Holland of Winnipeg has been named honorary surgeon to the Queen on the recommendation of the Minister of National Defence. Colonel Holland is director of medical service for the militia of the Prairie Command. ROSS MITCHELL

## QUEBEC

On May 9 Premier Maurice Duplessis officially opened the new \$4,000,000 Jeffrey Hale's Hospital in Quebec City. Construction of this hospital was made possible by subscriptions from individuals, from commercial firms and a \$1,000,000 grant from the provincial government. In addition, provincial authorities have purchased the St. Cyrille Street building which formerly housed the hospital, at a cost of \$750,000. The hospital was founded by Jeffrey Hale, a Quebec philanthropist, in 1867 to care for the sick and suffering of the Protestant faith in the Quebec area. Today, this hospital admits and cares for patients of all faiths and denominations.

At the ceremony the Premier was introduced by Colonel J. V. Boswell, chairman of the board of governors of the hospital, and thanked by J. H. Ottman, chairman of the house committee. The new hospital with the new nurses' residence is a beautiful example of a modern, efficient hospital system. It is hoped that many of our colleagues attending the annual meeting of the C.M.A. availed themselves of the opportunity for a brief but well worth while visit.

Montreal was host to the 60th Annual Meeting of the American Laryngological, Rhinological and Otolological Society during the week of May 13. Some 400 specialists attended the four days of scientific sessions. The delegates were welcomed to Montreal by Dean Lyman Duff of the faculty of medicine, McGill University. Drs. W. J. McNally and G. E. Tremble of Montreal were principally responsible for the success of the scientific sessions, as well as the social success of the meeting. Dean M. Lierle of Iowa City presided.

The 21st annual Hughlings Jackson Memorial Lecture at the Montreal Neurological Institute was given on May 9 by Dr. Israel Wechsler, professor of clinical neurology at Columbia University. He recalled that Hughlings Jackson is remembered for his profound observations and meticulousness as a clinician, and for his philosophical insight into the function of the brain. He was gifted with the capacity to think beyond the facts, to deduce general laws or theories and to propound concepts which have stood the test of time. Without the capacity to formulate theories, to invoke general principles, to correlate isolated data, to draw logical conclusions based on verified observations, there can be no scientific medicine at all. The day of great individual advancement of medicine, based on only one man's knowledge, is past. This is the era of teamwork and, in this connection, Dr. Wechsler praised the accomplishments of the staff

of the Institute. The ability to work in co-operation with other researchers promises much for the future in the alleviation of human ills.

The Annual Meeting of the Montreal Medico-Chirurgical Society was held on May 25 at the Faculty Club of McGill University. Brief reports were presented by the chairmen of the various committees, followed by the reports of the honorary treasurer and the honorary secretary. Officers elected for the coming year were Dr. H. S. Mitchell, president, Dr. Walter de M. Scriver, vice-president, Dr. A. H. Neufeld, trustee, Dr. A. L. Johnson, honorary treasurer, and Dr. McIver Smith, honorary secretary. Dr. W. J. McNally, the retiring president, then presented the annual presidential address—"Musings about a Good Doctor"—an excellent and thought-provoking talk in which he attempted to define and clarify the basic moral problems that confront the doctor in practice.

Highlights of Divisional activities included the completion of a crest carved by Colonel D. Stuart Forbes, representing the three university medical schools in our Division. The crest, unveiled at the dinner to Council in Quebec on June 12, is to have a permanent place at "C.M.A. House" in Toronto. Membership in our Division now stands at 1,120.

In addition to the insurance now available to members of our Division, as reported previously, a Group Automobile Insurance has been added recently. At the request of the Central Office, Dr. Campbell Gardner has been nominated chairman of the Divisional Committee on Civil Disaster. In accepting this post, he vacated the chairmanship of the Committee on Rehabilitation, to which Dr. G. Gingras has been nominated.

A. H. NEUFELD

## CANADIAN ARMED FORCES

The meeting of the Medical Planning Committee of the Supreme Headquarters of the Allied Powers in Europe held in Paris, May 2-4, 1956, was attended by the following Canadian representatives: as a member of the Canadian Forces Medical Council—Dr. G. E. Hall, A.F.C., E.D., M.S.A., Ph.D., D. ès. L., F.R.S.C., President and Vice-Chancellor of the University of Western Ontario, London, Ont.; Air Commodore A. A. G. Corbet, E.D., C.D., Q.H.P., Director General of Medical Services (Air), as senior representative of the Canadian Armed Medical Services; Group Captain H. Bright, Staff Officer Medical Services, R.C.A.F. Air Division; Surgeon Commander R. H. Roberts, R.C.N.; Lt.-Col. B. L. P. Brosseau, O.B.E., M.C., R.C.A.M.C. Liaison Officer of the Canadian Joint Staff, London; Wing Commander H. B. Hay, D.S.O., D.F.C., C.D., Staff Officer Medical Services, R.C.A.F., at Canadian Joint Staff, London.

Each of the three Canadian medical services presented papers at the meeting. Surgeon Commander R. H. Roberts presented two papers on the following subjects: "Medical Aspects of Maritime Arctic Operations"; H.M.C.S. *Labrador*, Arctic Cruise 1955, June 1—November 18, 1955, Medical Report. The Army paper presented by Lt.-Col. B. L. P. Brosseau was entitled "Medical Services in Cold Weather Warfare". The R.C.A.F. paper, "The Medical Aspects of Military Operations by the R.C.A.F. in a Cold Climate", was presented by Group Captain H. Bright.

After the Medical Planning Committee meeting Air Commodore Corbet visited 1 R.C.A.F. Air Division Headquarters, the four R.C.A.F. Fighter wings in Europe, and R.C.A.F. units in the United Kingdom.

Surgeon Commander R. H. Roberts, R.C.N., and Surgeon Lieutenant Commander R. B. Irwin are being appointed for duty in the Naval Hospital, Halifax, N.S., following postgraduate training. Surgeon Commander Roberts has been taking postgraduate training in internal

medicine in the London Post Graduate School of Medicine, London, England, since September 1954. Surgeon Lieutenant Commander Irwin has completed one year's internship in anaesthesia at the Ottawa Civic Hospital, Ottawa, Ont.

Dr. D. E. Wright of Chatham, England, was recently enrolled in the R.C.N. as a Surgeon Lieutenant for a three-year short service appointment. Dr. Wright graduated from the University of London, London, England, in 1950 and served in the Royal Navy from 1952 to 1956. He was appointed to H.M.C.S. *Stadacona*, Halifax, N.S., for duty in the Naval Hospital.

On April 24 the Honorary Colonel Commandant of the Royal Canadian Army Medical Corps, Brigadier E. A. McCusker, C.B.E., M.C., E.D., M.D., C.M., presented to Her Majesty Queen Elizabeth The Queen Mother, Colonel-in-Chief, Royal Canadian Army Medical Corps, a brooch made of platinum, diamonds, rubies and emeralds. The presentation, which took place at Clarence House, was a token of the affection and loyalty which the Corps feels towards their Colonel-in-Chief. Royal Canadian Army Medical Corps officers, Active and Reserve, contributed towards the brooch, which is a replica of the R.C.A.M.C. badge. Attending the ceremony were Brigadier J. E. C. Pangman, Army Member, Canadian Joint Staff, London; Lt.-Colonel N. H. McNally of London, Ont., Senior Medical Officer with the Second Canadian Infantry Brigade, Germany; Lt.-Colonel B. L. P. Brosseau, Montreal, Senior Medical Officer, Canadian Army Liaison Establishment, London; and Lt.-Colonel C. P. Smith, Ottawa, Officer Commanding No. 1 Central Medical Equipment Depot.

## BOOK REVIEWS

**ENERGY AND STRUCTURE IN PSYCHOANALYSIS.**  
K. M. Colby, San Francisco Institute of Psychoanalysis. 154 pp. Ronald Press Co., New York, 1955. \$4.50.

Psychoanalysis is both a method of treatment and a system of thought explaining the normal and abnormal workings of the mind. Since Freud a number of theorists have been concerned with the logical and "scientific" aspects of the subject. Dr. Colby seems to be most successful in this field. Freud used the current concepts available to him at the turn of the century while Colby with his knowledge of modern physics and the philosophy of science combined with experience in psychoanalysis uses concepts more complicated, more suitable today and more likely to explain satisfactorily the workings of the mind.

This book, empty of clinical examples and filled with high-level abstract thinking, reviews critically but constructively the logical inconsistencies still prevalent in psychoanalytic theory and thus it makes a claim for psychoanalytic meta-psychology belonging to science. Dr. Colby has chosen to discuss the basic postulates of psychic energy and structure. He reviews briefly the theory of instincts and disposes, perhaps rather summarily, of morbid or the death wish. He then goes on correcting and redefining terminology stemming from instincts, especially "drives". He found it necessary to make a number of new postulations and to depart from Freud's latest tripartite structural model and substitute a much more complicated three-dimensional model of his own. He conceives of psychic energy called by him "cathexis energy" as pure energy, without aim, describable in terms of pulsation, frequency, period, synchrony and dysynchrony. He describes drives as structural components of the psychic apparatus which are activated by this energy. They are divided into: (1) Drive schemas



(a schema being a micro-unit of structure containing specific concept meanings); (2) Drive source (biological in nature); (3) Drive aim; (4) Drive object; (5) Drive space-time.

Each contains innate "meantents" (a condensation of the words concept, meaning and intentions), but their influence on total behaviour is highly modified by the psychic apparatus.

Instead of the previous two-dimensional Freudian psychic model of id, ego, and super ego, Dr. Colby proposes a three-dimensional cyclic circular model. In it are assembled at the macro-level a series of systems whose activities consist of schemas invested with psychic energy. They are the (1) sensor; (2) transveyor; (3) receptor; (4) proprial; (5) environal; (6) emitter; (7) motor; (8) thought relinkor; (9) percept relinkor; (10) lingual.

Transformation of messages and energy occurs chiefly in the relinkor and lingual systems. While these theoretical constructs are too complex for the uninitiated reader and even far too advanced for their practical application in analytical methods of treatment at this time, for those striving for greater understanding and more explicit and precise teaching they are extremely useful.

Dr. Colby puts in proper perspective the importance of awareness, particularly awareness of one's psychological self, as the main means of introducing change in the course of treatment. He also illuminates the process of perception and reality sense in relation to thought, symbolization, affect, and action.

Perhaps the weakest point in his construction is the lack of emphasis or locus for feelings and affectivity in the general scheme of things. This is to be expected because emotions are notoriously elusive, escaping the grasp of the intellectual and of rationalizing processes.

#### COMMUNITY PROGRAMS FOR MENTAL HEALTH.

Edited by Ruth Kotinsky and H. L. Witmer. 362 pp. Harvard University Press, Cambridge, Mass.; S. J. Reginald Saunders and Company Limited, Toronto, 1955. \$5.50.

Can mental illness be prevented? Can we really promote good mental health in children or adults in the same way in which we try to develop sound physical health? As "ad hoc" community mental health programs are proposed and implemented, the question of evaluation and, even more basically, the problem of the theoretical structure on which these programs are based, are being studied ever more urgently and critically by psychiatrists and social scientists.

This book clearly presents the formidable difficulties to be encountered in establishing mental health programs with reference to defining and limiting the field and determining clear hypotheses and theoretical constructs which can be tested. Even the effectiveness of a community mental health clinic cannot truthfully be assessed in terms of the usual indices of people cured versus people who are not.

Nine different community programs having varying implications for mental health are described, together with three school mental health projects involving the relationship between education and mental health for both children and teachers. One is impressed by the suggestion that most of these programs were planned on the basis of unclear, unstated and unsupported assumptions. Similarly, attempts at evaluating these programs failed almost completely because of the lack of any clear-cut indices for their success or failure. Apparently in the mental health field it is almost impossible to become involved in giving service and at the same time to appraise objectively the value of this service.

On first reading this book, mental health workers may feel discouraged by the difficulties which are presented in planning and carrying out a positive mental health program. However, as they complete the book, they will undoubtedly be challenged by the vast importance of the work in which they are engaged. The book requires thoughtful reading but will repay the effort made.

**A HANDBOOK OF MEDICAL HYPNOSIS.** G. Ambrose, Consultant Psychiatrist, Park House Approved School, Guildford, England, and G. Newbold, Member of the Society for Clinical and Experimental Hypnosis, New York. 255 pp. Baillière, Tindall and Cox, London; The Macmillan Company of Canada Limited, Toronto, 1956. \$3.60.

In the preface, the authors state that the book is intended for the general practitioner and the student, and suggest that hypnosis could be used more extensively. In spite of this, they devote only eight pages to the technique of inducing the various stages of hypnosis, and within this small section there is a discussion of the relative value of the various methods.

A large part of the book is occupied by case reports which contain much psychiatric detail, but give a minimum of information about the primary organic disease. It hardly seems justifiable to consider the lack of muscular co-ordination, to which the authors ascribe stammering, bed-wetting, asthma and epilepsy, as one and the same process, nor is it usually accepted that "these spasm reactions are similar in every way".

The use of the term "somnambulism" to describe the deepest state of hypnotism is an unfortunate choice, since it is a word with a clearly defined meaning, and the authors at no time suggest that sleep-walking is comparable to the hypnotic state.

The book is well-produced; the type is clear and easily read, and there are very few typographical errors. However, it is strange to link "McCloud" with Banting and Best in the discovery of insulin.

For those who accept psychoanalytical dogma without question, this book will provide new vistas, but the practitioners of psychosomatic medicine who were trained in the precise disciplines of anatomy, physiology and pathology will gain little benefit from the vague generalities and inconclusive examples presented in this book.

**EXPERT COMMITTEE ON DRUGS LIABLE TO PRODUCE ADDICTION, 6th Report.** World Health Organization Technical Report Series, No. 102. 21 pp. Palais des Nations, Geneva; The Ryerson Press, Toronto, 1956. \$.30.

The WHO Expert Committee on Drugs Liable to Produce Addiction held its sixth session in Geneva, October 24-29, 1955, and its report has now become available. The Committee, in addition to a number of routine studies, considered a number of specific drugs of addiction. It began with a consideration of the present situation as regards heroin. Of the 20 states which have supplied estimates for heroin for 1956, only four are not prepared to suppress the use of the drug; several of the others have announced that they will discontinue its use when present stocks are exhausted. The over-all licit production has shrunk from 839 kg. in 1948 to 132 kg. in 1954. The Committee considers that this means that more and more physicians throughout the world are finding it possible to substitute less dangerous drugs for heroin. The Committee also considered once more the problem of pethidine addiction, concluding that pethidine is comparable to morphine in addiction liability, though neither pethidine nor morphine is as dangerous as heroin.

As regards synthetic drugs in general, the Committee thinks that the risk of addiction from them is neither greater nor less than that from natural products such as morphine and related opium alkaloids. They discussed papaverine, which has been tested for addiction liability in the U.S.A., and agreed with the conclusion of the testers that papaverine is not a cause of addiction. They refused a request of the government of the United Kingdom for exemption from the provisions of the 1931 Convention of a preparation containing hydrocodone (dihydrocodinone). They reviewed a number of synthetic substances with a morphine-like effect and in some cases

(Continued on page 86)

## depression and obesity often go hand in hand



Your obese patients are often depressed. Indeed, you may find that the reason for their obesity is a depression that drives them to overeating—just as other patients may be driven to drinking.

'Dexedrine Spansule' sustained release capsules exert a double action in depression complicated by obesity:

1. 'Dexedrine Spansule' capsules provide a smooth, uninterrupted antidepressant effect that lasts throughout the waking, working hours—with just one oral dose in the morning.
2. 'Dexedrine Spansule' capsules provide day-long control of appetite—between meals as well as at mealtime—with just one oral dose in the morning. (Thereby helping to eliminate between-meal snacking.)

## **Dexedrine\*** **Spansule\***

dextro-amphetamine sulfate, S.K.F.

made only by



**Smith Kline & French • Montreal 9**  
*the originators of sustained release oral medication*  
also available in tablets of 5 mg.



exempted them from the stigma of addiction production, while in others they maintained their belief that the drugs were liable to cause addiction.

A most interesting feature of this report is the discussion on the abuse of amphetamine. It seems that in Japan there has since the war been an epidemic of abuse of amphetamines, mainly by teen-agers. In one area over 1% of the whole population and about 5% of the 16-25-year-old population are addicts to these products. The Japanese Pharmacists' Association has estimated that there are 1½ million persons in Japan abusing these drugs. The addicts usually administer amphetamine to themselves intravenously or subcutaneously. Some are also barbiturate users. They show symptoms of anorexia, weight loss, insomnia, palpitation, and marked auditory hallucinations and delusions of reference, which have led in some cases to the commission of crimes of cruelty. Symptoms closely resemble schizophrenia, but disappear in almost all cases one month after giving up use of the amine. Administration of chlorpromazine has proved valuable in treatment.

**EUROPEAN SEMINAR ON THE PREVENTION AND TREATMENT OF ALCOHOLISM. Selected Lectures.** 51 pp. World Health Organization, Palais des Nations, Geneva, 1954.

This is a reprint of lectures which have already appeared in the *Quarterly Journal Of Studies on Alcohol* during 1954 and 1955. The seminar from which the lectures are taken was a co-operative effort by the European Office of the World Health Organization and the Netherlands government. Four of the lectures are by Netherlands participants, and reflect the progressive thinking on alcoholism in that country. The fifth, on health education, is by a Yugoslav expert. Particularly interesting is the lecture by Querido on first-aid for alcoholics, in which he contrasts the usual elaborate apparatus for bringing first-aid to the physically injured or sick with the often shameful means of disposal of the mentally ill, including alcoholics.

**EXPERIENCING THE PATIENT'S DAY.** R. W. Hyde, in collaboration with the attendants of Boston Psychopathic Hospital. 214 pp. Illust. Putnam & Sons, New York. \$2.20.

This book deals with the everyday difficulties in psychiatric hospitals, those misunderstandings that snarl up our attempts to make the hospital a good place for patients and staff alike. It does not pretend to easy answers.

Over and over again the problem of communications comes up. For instance, the author writes, "The organization of the hospital has as an important part of its goal, the prevention and resolution of these stresses. However, much of the resolution comes about only through sincere communication between the parties involved, wherein they discuss frankly what they expect of each other. Group discussion is the prime tool for bringing about this understanding."

Doctor Hyde's qualities are not only those of keen observation combined with a lively mind but also compassionate understanding and honesty. He says frankly that none of us likes all our patients all the time; consequently, we are liable to be unfair to them. He doesn't sermonize or blame people but simply shows what happens when, avoiding free and open discussion, medical, nursing and other therapeutic staff are at unspoken loggerheads. He says "The patient is a football and each one of you is kicking back and forth between you."

The non-psychiatric reader may feel that his hands are clean and that such misfortunes occur only in psychiatric hospitals, but the reviewer does not think this is so. The development of the therapeutic team in general hospitals is still so rudimentary that few people are sophisticated enough to recognize the appalling lack of communication between the numerous people

involved in getting the patient well, the stresses that exist between the various hierarchies, and the equally severe stresses that exist within the various hierarchies. If the therapeutic team in medicine is ever to become a reality, much work of the type that Dr. Hyde has pioneered will be necessary; no one who is looking ahead in medicine can afford to miss this warm-hearted and notable piece of writing. It is a cheap book, a short book and a very good book.

**GRUNDRISSE DER ORTHOPAEDISCHEN KRANKEN-UNTERSUCHUNG.** (Basic Clinical Examination in Orthopaedics). G. Chapchal, F.I.C.S., University of Utrecht, Holland. 187 pp. Illust. Ferdinand Enke, Stuttgart, 1954. D.M. 25.50.

This textbook is mainly concerned with the technique of examination of the orthopaedic patient. It is not a differential diagnostic handbook, although points in the diagnosis of many orthopaedic conditions are naturally described in connection with the techniques for eliciting physical signs. The division into chapters follows an anatomical plan, and each section is subdivided into: inspection at rest and in movement, and palpation at rest and in movement. The book begins with a description of the examination of the neck and continues with the examination of the upper limb. In the case of the upper and lower limbs the examination is made regionally, taking the shoulder, elbow, wrist, etc. in turn, and inspecting and palpating each joint at rest and in movement. The examination of the trunk follows a very similar plan. There are sections in connection with each joint on the interpretation of radiographs. The book is suitable for the beginner in orthopaedics, but contains sufficient detail to make it acceptable also to senior students and junior surgeons. Most readers will find something new or some new technical hint in these pages. The book is illustrated by a number of diagrams and some good radiographs of orthopaedic conditions.

**THE ADMINISTRATION OF HEALTH INSURANCE IN CANADA.** M. G. Taylor, Department of Political Economy, University of Toronto. 270 pp. Oxford University Press, Toronto, 1955. \$5.00.

Having seen and criticized in manuscript many of the chapters of Dr. Taylor's study of health insurance in Canada, it is with added interest that this reviewer has examined the finished volume. This is a study to which the words "scholarly" and "objective" might not inappropriately be applied, but at the same time it is a practical manual and guide to current developments in the distribution of health services in this country. Few persons besides the author could have brought to bear on this complex subject the viewpoint of the economist, the sociologist and the administrator and could have come so close to understanding the attitude of the physician. Although his doctorate is in philosophy, not medicine, he shows a rare understanding of the aspirations, the performance and the prejudices of Canadian doctors.

Health insurance is everybody's business and the appearance of the first authoritative Canadian work at this particular time is fortunate. If you want facts and figures on the legal position, the range of benefits, the costs and the experience of prepayment agencies, you will find them here. If you are interested in the interplay of policy and administration, the arguments for the voluntary or the governmental approach, the matters of abuses, controls and systems of remuneration for medical and hospital services and many other facets of this subject, this book will provide much interesting material.

Not everyone will agree with the findings summarized in the omnibus chapter entitled "Conclusion". The subject is such a vital one that the word "conclusion" is hardly appropriate to a survey of the changing scene. It is, however, not to be expected that the formative

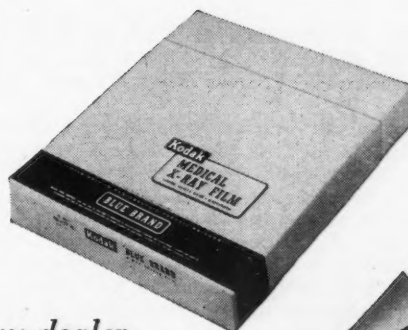
(Continued on page 88)

## *Notice how consistently Blue Brand responds* **... film after film**



**Among the outstanding qualities** of today's Kodak Blue Brand X-ray Film are (1) its ability to register detail; (2) the uniformity of this response.

**These same two qualities** are high on the list of reasons why so many radiologists depend upon Blue Brand for correlation and evaluation of the patient's condition.



*Order from your Kodak x-ray dealer*

**CANADIAN KODAK CO., LIMITED**  
Toronto 9, Ontario

**Kodak**



stages of Canada's answer to a great social problem would provide anything close to unanimity. Despite the divergence of opinion which is bound to be aroused by Dr. Taylor's interpretations, it will be recognized that he arrives at them with a mind well stocked with information and an eye which is discerning and critical.

"The Administration of Health Insurance in Canada" is required reading for students of medical economics, for all doctors who are concerned with the development of sound medical and hospital care insurance, for plan administrators, for social planners and particularly for our legislators and government officials who are venturing into otherwise uncharted seas.

**MALPRACTICE LIABILITY OF DOCTORS AND HOSPITALS.** W. C. J. Meredith, Dean of the Faculty of Law, McGill University, Montreal. 300 pp. The Carswell Company Ltd., Toronto, 1956. \$7.75.

This book is the best of its kind this reviewer has seen. The clarity of the writing is exceptional and the style is so easy that medical men whose knowledge of the law may be meagre will find the book interesting and the legal principles clearly stated. The book is so arranged that doctors can use it as a reference work; legal principles are stated, illustrative cases are cited and often advice, legal and medical, is given about medical matters with legal implications. Where several legal principles or applications of the law are involved in a medical problem, cross references are part of the text and are arranged for easy use. There are sufficient legal references for the book to be of use to lawyers, and enough pertinent parts of them are quoted to make the various points with which the author deals.

Hospital problems are dealt with—responsibility for attending doctors, doctor-employees; responsibility for nurses, staff and special, and for interns.

Advice is given to doctors who must appear as witnesses and to doctors who themselves are being sued. The bases of action against these latter are described, the things they must have done if they are to defend themselves successfully, the precautions they must have taken, the knowledge they need to possess and the care in applying it. Criminal malpractice is discussed at shorter length than civil; the distinction between the two is made and it is clearly stated that the carelessness must have been much more gross before civil becomes criminal malpractice or negligence.

Many situations are described in which it is impossible for doctors to be sure of their legal responsibilities, and the author, wisely, advises medical consultation, careful examination and clear reports by all the doctors concerned before any decision is reached. Particularly is this true when permission for treatment cannot be obtained or cannot be obtained quickly enough in cases of emergency, or when permission for necessary treatment is refused in spite of a full explanation.

The reviewer agrees fully with Dr. J. Gilbert Turner's remarks in his foreword that "It is a book which should be owned and studied by every medical practitioner . . . it should be prescribed reading for every undergraduate student in medicine . . ." It should certainly be available for reference in every hospital library.

**THE HAMILTON GENERAL HOSPITAL SCHOOL OF NURSING, 1890-1955.** M. F. Campbell. 172 pp. Illust. The Ryerson Press, Toronto, 1956. \$4.50.

The health services of Canada's Ambitious City are fortunate in their biographer, as Mrs. Campbell already has to her credit the story of Hamilton's effort to eliminate tuberculosis in "Holbrook of the San". Her current volume relates the life history of the School of Nursing at the Hamilton General Hospital from its turbulent beginning in 1890 to its present pre-eminent position as one of Canada's largest and best three-year schools.

The history of an institution is, of course, the story of the people who work in it and who give it the character which it acquires. The Hamilton General Hospital has

never been lacking in personalities and salty characters and this book provides many fine examples from the Board of Governors, the City Council, the medical staff, and naturally from the School of Nursing itself. The evolution of the School of Nursing is epitomized in the succession of titles which relate to its head: Matron, Head Nurse, Lady Superintendent, Superintendent of Nurses, and finally Director of the School of Nursing and Nursing Service. The women who filled these appointments constitute a distinguished roster of the leaders of nursing education in Canada, and their pupils have contributed materially to our health services in all parts of the country.

This book will have its greatest appeal to the thousands of graduates of the Hamilton General Hospital School of Nursing, but any doctor who has interned at the hospital or who has practised in its area of influence will find much here to interest him and to stimulate his memory.

**MODERN PUBLIC HEALTH FOR MEDICAL STUDENTS.** I. G. Davies, Professor of Public Health and Preventive Medicine, University of Leeds, England. 487 pp. Edward Arnold, London; The Macmillan Company of Canada, Limited, Toronto, 1955. \$5.00.

This is an interesting book, describing the health and welfare services of Britain with information about the organization by the government for both prevention and treatment of disease. An effort is made to consider medical care in a broad way, so that it has to be integrated with other social measures which also have a contribution to make to national health. The methods by which this is to take place remain important problems in the organization of medical care in the community.

A history is given of the development of public health laws and regulations intended to prevent and control epidemics and hinder the entrance of disease from travellers in this day of rapid transport.

There are chapters on maternal health and welfare and child care. Plans are discussed for rehabilitation of persons disabled either physically or mentally, as well as the problems presented by diseases of special social importance such as epilepsy.

It is a book of value to students in Canada who wish to learn what is being done in another country to solve problems present everywhere.

**HANDBOOK OF MEDICAL LIBRARY PRACTICE.** Edited by Janet Doe and Mary Louise Marshall. 2nd ed. 601 pp. American Library Association, Chicago, 1956. \$10.00.

Medical librarians from Bergen to Belgrade, from Capetown to Cairo, from Penang to Peking, from Santiago to San Juan, to say nothing of those on this continent, will hail with warm gratitude and enthusiasm the new edition of this handbook. It is the only manual of its kind, and has proved an indispensable guide to the organization and administration of medical libraries, as well as to the acquisition, preservation, classification and cataloguing of medical literature. While much of the material included is new, the book rests solidly on the labour of the original authors. Based on a preliminary manuscript by M. Irene Jones, it is the fruit of the co-operative effort of a group of outstanding medical librarians appointed by the Medical Library Association. Both editions have been under the able editorship of Janet Doe, for whose never-failing and generous help, librarians the world over have much to be grateful. In the second edition, she has been competently assisted by Marie Louise Marshall. Much of the material included will be helpful, not only to medical librarians, but to physicians and scientists as well in guiding them through the devious channels of literary research. For the historically minded, Gertrude L. Annan's "Rare Books and the History of Medicine" includes sound advice on book

(Continued on page 92)

# RABON



BRAND OF TETRACYCLINE SUSPENSION

NEW taste-tempting  
dosage form  
of Pfizer-discovered  
tetracycline.

125 mg. tetracycline per 5 c.c. teaspoonful. Bottles of 2 fl. oz.

READY TO USE. No reconstitution required.

READILY ACCEPTED. Unusual, delicious fruit flavour.

RAPIDLY ABSORBED. Fine particle dispersion—therapeutic blood levels within one hour.

RAPIDLY EFFECTIVE. Fast, trouble-free tetracycline for control of the widest range of infections.



*World's Largest Producer of Antibiotics*

VITAMIN-MINERAL FORMULATIONS, HORMONES.

**PFIZER CANADA**

DIVISION OF PFIZER CORPORATION,

5330 ROYALMOUNT AVENUE, MONTREAL 9, P.Q.



values, aids in selection, special points concerning different types of material, such as manuscripts, incunabula, Americana, and reference books, as well as the physical care of rare books. "The Bibliography of the Reference Works and Histories in Medicine and Allied Sciences", compiled by Eileen Cunningham, Gertrude L. Annan and Mary E. Grinnell, is one of the most valuable sections in the Handbook. The list, which includes 1,965 well-annotated references, is arranged by broad subject. Its objective, the compilers state, is "to introduce the reference material in medicine and related sciences to medical, dental and pharmaceutical librarians, physicians, investigators and students of medicine, nurses, pharmacists, medical technicians, and any other groups who are engaged directly or indirectly in medicine and its auxiliary sciences, as well as to library school students planning to become medical librarians".

The book is well-documented, well-indexed, excellently printed, and the format is strikingly good.

**FUNDAMENTALS OF FIRST-AID.** R. A. Mustard, Clinical Associate, Department of Surgery, University of Toronto, Ont. 116 pp. Illust. The Priory of Canada of The Most Venerable Order of the Hospital of St. John of Jerusalem, 1956.

In the foreword to this revolutionary little volume, the late Dr. W. P. Warner describes the need for a distinctively Canadian approach to the teaching of first-aid, which has for so long been dominated by the traditional "First-Aid to the Injured" of the St. John Ambulance Association. The cover of the present volume is black, but here any resemblance to the other ceases. A representative committee assessed the problem and assigned the difficult and responsible task of authorship to Dr. R. A. Mustard. His approach is a refreshing change from the "do something" and "a treatment for everything" school of first-aid and he stresses physiological principles rather than procedures. In excising much of the deadwood from the practice of first-aid, shock, pressure points and elaborate splinting procedures have been discarded; and this reviewer had to look twice to find the good old triangular bandage.

On the assumption that professional medical help will be available the first-aid is cautioned not to undertake procedures which are not immediately helpful and it is remarkable how few really useful manoeuvres remain. The handling of the injured in the circumstances where a doctor is not available is another story, which must await the production of another manual.

The medical profession will welcome this sane and practical volume, but one must spare a sympathetic thought for the veteran St. John instructor who witnesses the carnage of the cherished beliefs of a life-time.

**HEALTH INSURANCE: WHAT ARE THE ISSUES?** 60 pp. Canadian Welfare Council, Publications Department, Ottawa, 1956. \$1.00.

This interesting little volume is the outcome of over three years' work of a large, amorphous Committee of the Canadian Welfare Council and of its working party, a much smaller group which had the task of reconciling divergent views and getting the words down on paper. Despite its profession of objectivity, medical readers may find in this brochure a decided bias towards government-in-medicine and a preponderance of the viewpoint of the social worker. As the statement has been sponsored by the Canadian Welfare Council, it would be strange if this were not the case and doctors should profit by this view of the situation through the eyes of those whose work is largely among the problem cases, the misfits and the failures of society.

The tendency to equate "need" with "demand" for health services is evident throughout the text. The argument is alternatively critical of the limitations and the costs of voluntary insurance plans and lighthearted about the financing of a tax-supported service. By easy stages the reader is led to a consideration of a "nation-wide

health plan", the authors having hurdled the constitutional, economic and professional aspects of the situation by stating that they exist and subsequently ignoring them. It cannot be said that the authors of this report neglected to obtain medical opinion during the protracted period of its incubation, but by attrition and by dilution the doctors' viewpoint is distorted out of all recognition and can scarcely be said to be represented. Although the evidence may in many respects be regarded as slanted, the summation is plausible and will appeal to a considerable public.

This brochure is recommended reading for doctors if for no other reason than to acquaint them with the attitude of the planners whose watchword is Social Security and whose current interest is Health Insurance.

**PREVENTIVE MEDICINE IN WORLD WAR II. Volume III: Personal Health Measures and Immunization.** J. B. Coates, Jr., E. C. Hoff et al. 394 pp. Illust. Office of the Surgeon General, Department of the Army, Washington, D.C., 1955. \$3.25.

This is the third book in the series dealing with preventive medicine, previous volumes having covered epidemiology and environmental sanitation. Preventive medicine emerged as a special field dealing with all of the factors that influence the maintenance of health in the individual and the military community. The various chapters of this book were written by men especially qualified to deal with the respective subjects. The personal health of those going into the Services is first affected by the manpower selection process—presented in chapter I. Here it is shown that clinical and preventive medicine must work in close coordination in order to achieve the most economical use of the available manpower pool. The Canadian Army PULHEMS system is given adequate space and also credited with stimulating adoption of a modified form in the United States Army. Subsequent chapters deal with all the measures that an individual may utilize to maintain or improve his health. They include personal measures to prevent or control disease and injury, nutrition and the wearing of clothing to avoid trauma from heat or cold, preventive psychiatry, accidental trauma and the Army immunization program.

The authors of the various chapters of this volume have sifted carefully the experiences of effectiveness of personal health measures in World War II. The evidence emphasizes the need for further studies of health maintenance practices and for more effective methods of health education. This is a volume especially recommended to those willing to learn and willing to benefit from experiences, mistakes and repetitive efforts of the past.

**RADIUM THERAPY.** C. W. Wilson, Principal Physicist to the Westminster Hospital, London. 286 pp. Illust. Baillière, Tindall and Cox, London; The Macmillan Company of Canada, Ltd., Toronto, 1956. \$6.35.

The first edition of *Radium Therapy—Its Physical Aspects* published in 1945 was very favourably received by radiotherapists and hospital physicists. This second edition is extended to include recent developments in hospital physics and to cover the applications of radioactive isotopes in the same medical field as radium. As mentioned in the preface to the second edition, radioactive isotopes are now being administered to patients orally or by injection thus removing from the therapist direct control over the site of action. The new edition does not deal with this type of therapy but, as with the first edition, deals only with controlled radioactive sources. A new chapter deals with such isotopic sources, their production and characteristics. All other chapters have been suitably expanded as indicated by the extended title. Included is additional information on dosimeters, Geiger-Mueller and scintillation counters, and also beta-ray dosage measurements.

This book is to be highly recommended for radiotherapists and radiation physicists, but would be of only academic interest to general practitioners and specialists in other fields.



# ACHROMYCIN<sup>\*</sup>

Tetracycline Lederle

## in the treatment of respiratory infections


January and his associates<sup>1</sup> have written on the use of tetracycline (ACHROMYCIN) to treat 118 patients having various infections, most of them respiratory, including acute pharyngitis and tonsillitis, otitis media, sinusitis, acute and chronic bronchitis, asthmatic bronchitis, bronchiectasis, bronchial pneumonia, and lobar pneumonia. Response was judged good or satisfactory in more than 84% of the total cases.

Each month there are more and more reports like this in the literature, documenting the great worth and versatility of ACHROMYCIN. This antibiotic is unsurpassed in range of effectiveness. It provides rapid penetration, prompt control. Side effects, if any, are usually negligible.

No matter what your field or specialty, ACHROMYCIN can be of service to you. For your convenience and the patient's comfort, Lederle offers a *full* line of dosage forms, including

## ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Attacks the infection—defends the patient—hastens normal recovery. For severe or prolonged illness. Stress formula as suggested by the National Research Council. Offered in Capsules of 250 mg. and in an Oral Suspension, 125 mg. per 5 cc. teaspoonful.

 For more rapid and complete absorption. Offered only by Lederle!

<sup>1</sup>January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.



LEDERLE LABORATORIES DIVISION  
NORTH AMERICAN Cyanamid LIMITED  
MONTREAL, QUEBEC

<sup>\*</sup> REG. TRADE MARK IN CANADA

PHOTO DATA: 4X5 VIEW CAMERA, F5.6, 1/25 SEC., EXISTING LIGHTING AT DUSK, ROYAL PAN FILM.



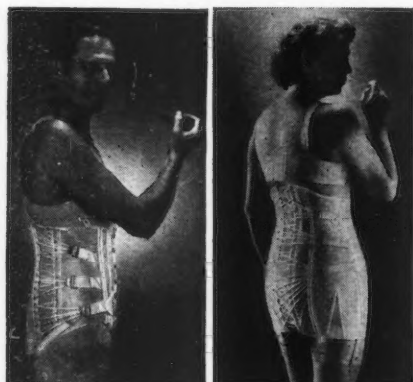
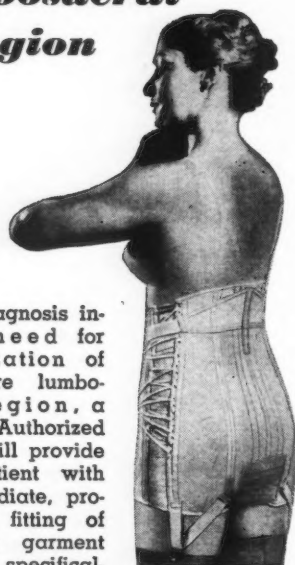
# Rx

prescribe

## CAMP

for  
immobilizing the  
lumbosacral  
region

When diagnosis indicates need for immobilization of the entire lumbosacral region, a Camp Authorized Dealer will provide your patient with an immediate, professional fitting of a Camp garment designed specifically for the job. Your patients have the assurance of comfort through superior construction, and economy through Camp's low prices.



**CAMP**  
SUPPORTS APPLIANCES

WINDSOR, ONTARIO

## MEDICAL NEWS in brief

(Continued from page 55)

### ULTRAVIOLET PHOTOGRAPHY IN PERIPHERAL VASCULAR DISTURBANCES

Jayle and his colleagues from Marseilles (*Presse méd.*, 64: 770, 1956) describe a new technique for the investigation of the circulation in the lower limb. They inject a solution of fluorescein containing 5 ml. at 2% into the femoral vein. Immediately before this, they raise histamine wheals at the thigh, in the knee, in the lower leg, on the dorsum of the foot and at the root of the great toe. They measure under ultraviolet light, using a Wood filter, the time taken for the appearance of the wheals after injection of the fluorescein. In normal subjects, the ultraviolet photographs show a brilliance at the site of the thigh wheal within three to five seconds, at the knee within five to eight seconds, at the foot within 12 to 18 seconds. In addition, the general luminosity of the limb in the ultraviolet photographs enables an appreciation of the state of the circulation in the capillaries and arterioles. The authors point out, of course, that a study of the cutaneous circulation may not necessarily reveal disturbances in the deep circulation; nevertheless they have found a close agreement between the two. They also point out that in cardiac decompensation it is necessary to compare the results with a circulation time determination made by another method. The patient is kept in a room at 20-22° C. for several minutes before the study, in order to avoid error due to thermo-regulatory mechanisms.

This fluoroscopic study has revealed a number of interesting features in cases of vascular disorder. In almost all patients who appeared clinically to have a unilateral arteritis, study of the opposite leg showed some latent disorder in the other leg. Study of subjects in whom the only clinically apparent lesion was a vascular one in the eye, revealed in 76% of cases latent disorders in the limbs. Study of diabetics, particularly those of long standing or with retinitis, revealed anomalies in the limbs in 80% of cases. In 75% of cases of chronic glaucoma, some defect was found in capillary circu-

lation in the limbs. Subjects with cataract also frequently show vascular lesions.

### WORLD HEALTH ORGANIZATION

The Ninth World Health Assembly opened on May 8 in the Palais des Nations, Geneva, and continued until May 26. The President of the Eighth World Health Assembly last year in Mexico was Dr. Ignacio Morones Prieto, Minister of Health and Welfare, Mexico. He opened the ninth Assembly.

The Canadian delegation to the Ninth World Health Organization Assembly was headed by the Deputy Minister of National Health, Dr. G. D. W. Cameron. Other members of the delegation were S. R. Balcom, M.P. for Halifax, Dr. F. Burns Roth, Deputy Minister of Public Health for Saskatchewan, Dr. Emile Blain, Director-General of the Canadian Association of French-Speaking Doctors, Hector Allard, Canada's Permanent Delegate to the United Nations at Geneva, and Miss Dorothy M. Percy, Chief Nursing Consultant of

(Continued on page 48)

## CAREER OPPORTUNITY

for an

## ANAESTHETIST

with the

### DEPARTMENT OF VETERANS AFFAIRS

Westminster Hospital  
London, Ontario

Starting salary will be based on qualifications and may be as high as \$10,000.

For details write immediately to  
Civil Service Commission, Ottawa.  
Quote Competition 56-514.

THIS PENICILLIN TABLET  
**HAS EVERYTHING.....**

ITS PALATABILITY IS MATCHED  
ONLY BY ITS THERAPEUTIC EFFECT



## **sugar-coated — soluble** (POTASSIUM PENICILLIN)

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>● Pleasant to take—no bitter taste</li><li>● Sugar-coating protects tablets against careless handling</li><li>● Stable for three years</li></ul> | <ul style="list-style-type: none"><li>● Better absorbed than insoluble penicillin</li><li>● Produces <i>effective</i> blood and tissue levels more <i>consistently</i></li><li>● Duration of activity equal to that of insoluble salts</li></ul> |
|--|--|

Sugar-coated **CRYSTAPEN** tablets

Trade Mark

AVAILABLE ALSO IN UNCOATED FORM

Two potencies: 125 mg. and 250 mg. (200,000 and 400,000 I.U.) potassium penicillin B.P. bottles of 12 and 100.



GLAXO (CANADA) LTD • 26 DUNCAN STREET • TORONTO • ONTARIO



## MEDICAL NEWS in brief

(Continued from page 44)

the Department of National Health and Welfare, Ottawa.

One of the interesting questions for discussion before the Assembly was the resumption by "inactive" members of their rights and obligations in the World Health Organization. It will be recalled that in 1949 the U.S.S.R., the Ukraine, Byelorussia and Bulgaria withdrew from active participation and were followed in 1950 by other eastern European countries. The U.S.S.R. and some of the other inactive members have made contact with WHO during the past year and it is to be hoped that they will soon be back in active participation, although the U.S.S.R. did not send a delegation to the present Assembly. One question that had to be settled in this connection was the payment of arrears of contribution by so-called "inactive" members. A resolution, however, was adopted at the present Assembly whereby a token payment of 5% of the amount of annual assessment would be required for each year of inactive participation.

The present Assembly elected six member countries entitled to designate persons to serve on the WHO Executive Board for the next three years. Those elected are Canada, India, Italy, Mexico, Syria and the United Kingdom. It should be noted that members of this 18-member Executive Board act in their individual capacity as public health experts, and not as representatives of the governments.

The WHO Executive Board last January recommended a budget of 11 million dollars for WHO for 1957; the present Assembly cut this to \$10,700,000, but it approved a supplementary budget of \$1,525,000 designed to operate "only to the extent to which inactive Members notify the Director General that they will resume active participation in the work of the Organization as from 1957". The reference to inactive Members is related to the recent expression of intentions by the Soviet Union and certain other eastern European countries of an interest in resuming WHO activities.

## GIVING UP SMOKING?

In a letter to the editor of the *British Medical Journal* (1: 921,

1956) Dr. R. J. Goldacre describes a simple method for reducing the urge to smoke. He had a cigarette consumption of 40 a day until he began examining his reasons for wanting to smoke. He found that his impulse to smoke was often based on some frustrating experience which had occurred in the quarter of an hour or so before the impulse appeared. By searching for the cause of such frustration and writing it down, he found that the impulse to smoke disappeared. Not only this, but in a short while the number of frustrating situations per day fell from about 12 to about two. Writing

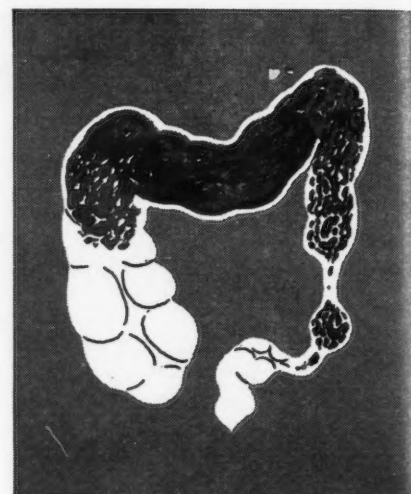
down his frustrations seemed to act as a counter-balance to the need for smoking. He recommends his method to others who are in difficulties over giving up smoking.

### PHENOTHIAZINE DERIVATIVES IN ECLAMPSIA THERAPY

Two physicians from Singapore report the results of their treatment of 30 consecutive unselected cases of eclampsia by intravenous administration of phenothiazine derivatives. They work in a hospital where the turnover of patients is

## ANNOUNCING

### THE FIRST NON-LAXATIVE TREATMENT OF CONSTIPATION



CONSTIPATION—DRY FECES

## DOXINATE\* THE FECAL SOFTENER

• **Doxinate** is a wholly new type of therapeutic agent.

• **Doxinate** acts purely by physical means, solely on the intestinal contents.

• **Doxinate's** only effect is to permeate and homogenize hard fecal masses and thereby to restore soft, normal stools.

• **Doxinate** does not cause bowel movements—instead, it removes the primary cause of functional constipation (dryness) and permits normal elimination.

• **Doxinate** is unusually efficient and exceptionally easy to take. One small capsule, *once* daily, is sufficient to soften the fecal material.

• **Doxinate** is safe and non-toxic because it is chemically inert.

• **Doxinate** can be used indefinitely, prophylactically or therapeutically, without fear of habituation.

• **You will find** Doxinate especially valuable in your pediatric, geriatric, surgical and obstetrical practice.

enormous and the nursing and medical staff limited. Their method is to administer immediately in any case of eclampsia solution No. 1 (chlorpromazine 15 mg., promethazine 50 mg. and pethidine 50 mg. in 250 ml. of 5% dextrose. They give the first half of this solution rapidly intravenously and the second half at 200 drops per minute, so that the whole volume is given in ten minutes.) They follow this immediately with solution No. 2 consisting of chlorpromazine 100 mg. with pethidine 50 mg. in 250 ml. of 5% dextrose at a speed of 40 drops per minute. Ten minutes later the patient is catheterized and a Foley

catheter left in the bladder. The patient is then examined, and if not in labour is given 100 g. atropine and prepared for Cæsarean section. If the patient is in labour, the membranes are stripped digitally and then ruptured to hasten vaginal delivery. After operation, chlorpromazine 100 mg. with pethidine 50 mg. is injected i.m. every six hours for three or four injections. The first injection is usually given two hours after operation.

Within five minutes of beginning treatment the patient goes into a deep sleep, with fall in blood pressure and respiration rate. The only fits which occur after the treat-

ment has begun are mild twitchings of the face and limb. The excellent condition of patients during and after operation is most marked.

In addition, 200 ml. of 50% dextrose is given intravenously by drip to produce diuresis, and the authors give strophanthin routinely as well as penicillin.

In the series of 30 cases there was only one maternal death, which occurred on the sixth day after admission, by a misadventure. Fetal mortality was unfortunately high, 13 infants dying, but most of these were very premature. — *J. Obst. & Gynec. Brit. Emp.*, 63: 255, 1956.

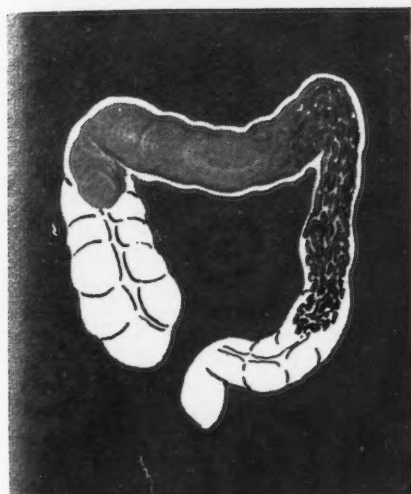
## RADIOTHERAPY OF HYPERTENSION

Gorinshtein and Yurenev of Moscow (*Klinitscheskaya Meditsina*, March 1956, page 67) report results of radiotherapy to the brain in cases of essential hypertension. They treated 43 patients by irradiation applied alternately to two temporal regions and to the frontal region with fields of 6 x 8 cm., an interval of three days between sessions, a filter of 0.5 Zn + 1 Al, 170 kV. and 4 mA. The dose at each session, which was applied to a different one of the three fields, was 100 r. They claim that only in four patients was there any radiation sickness after this therapy. In 39 out of the 43 cases there was a reduction in systolic and diastolic blood pressure. They recommend this treatment for patients particularly in the early stages of essential hypertension and those complaining of headache. They claim that the results are persistent, as shown by a follow-up of over a year.

## OTITIS EXTERNA

An otologist and a dermatologist from the London Hospital (*Brit. M. J.*, 1: 1068, 1956) have collaborated in writing a paper about the common problem of otitis externa. They made a bacteriological study of each of 50 patients attending their respective departments with otitis externa. In the otological department, patients tended to have inflammation mostly confined to the meatus, whereas in the skin department there was usually both mea-

(Continued on page 50)



PENETRATION BY DOXINATE



RESULTANT SOFT, FORMED FECES

Doxinate is not oily and does not leak or interfere with vitamin assimilation or other digestive processes.

Doxinate does not irritate the bowel or cause "griping" or flatulence.

Doxinate is not a bulk producer. You can prescribe Doxinate without fear of its causing "bloat," "fullness," or impaction.

### DOSAGE:

Adults, one or two capsules, once daily; for infants and small children, 1 cc. once daily in formula, milk or orange juice.

### SUPPLIED:

Bottles of 30 and 100 capsules; each green capsule contains 60 mg. specially purified dioctyl sodium sulfosuccinate. Bottles of 60 cc. with calibrated dropper; 1 cc. contains 10 mg. dioctyl sodium sulfosuccinate.



LLOYD BROTHERS,

PHARMACEUTICALS, LTD.

575 Niagara Blvd., Ft. Erie, Ontario

"In the Interest of Medicine since 1870"

\*Pat. Pending



## MEDICAL NEWS in brief

(Continued from page 49)

titis and dermatitis of the external parts of the ear. Pure cultures were obtained from 31 patients. Both the otologist and the dermatologist saw a high proportion of *Staph. pyogenes* infections. In 69 cases there was a mixed infection, with pathogenic cocci, intestinal pathogens and saprophytes in varying propor-

tions. It is noteworthy that 56 of the 100 patients examined had a contamination of the ear with intestinal organisms, obviously due to transfer by the patient's fingers. In 14 cases, the taking of nasal swabs showed that the same organism was present in the nose as in the ear, another instance of digital transfer. Mycotic otitis externa was very rare. Forty of the dermatologist's patients had skin conditions

elsewhere, infective and/or itchy. Ten of the otologist's patients suffered from pruritus ani and three from skin lesions elsewhere.

The authors emphasize that prevention of otitis externa depends on avoidance of digital transfer of organisms from other foci of infection. A high standard of personal hygiene is essential, particularly with regard to hand-washing after defaecation. Treatment consists in eliminating the infective state, which obviously includes treatment of any other sources of infection, treating any associated skin disorder elsewhere, restoring the natural protective mechanism of the meatal skin (by ceasing to interfere with it and by the regular use of olive oil within the meatus), removal of irritating residua (which may require syringing, but should first be done with the aid of cotton wool on applicators), and relief of persistent itching by local and systemic remedies. Caution is advised in the use of antibiotics. It is emphasized that it is undesirable for persons with otitis externa to be employed in the preparation, manipulation or sale of food.

*quicker relief  
and shortened disability  
in Herpes Zoster and Neuritis*

## Protamide®

### ... Five Year Clinical Evaluation

With only one to four injections of Protamide® prompt and complete recovery was obtained in 84% of all herpes zoster patients and in 96% of all neuritis patients treated during a five-year period by Drs. Henry W., Henry G., and David R. Lehrer (Northwest Med. 75:1249, 1955).

The investigators report on a total of 109 cases of herpes zoster and 313 cases of neuritis, all of whom were seen in private practice. All but one patient in each category responded with complete recovery.



This significant response is attributed to the fact that Protamide therapy was started promptly at the patient's first visit.

The shortening of the period of disability by this method of management is described as "a very gratifying experience for both the physician and the patient."

Protamide® is a sterile colloidal solution prepared from animal gastric mucosa... free from protein reaction... virtually painless on administration... used intramuscularly only. Available from supply houses and pharmacies in boxes of ten 1.3 cc. ampuls.

## Protamide®

... a product of

*Sherman Laboratories*

Detroit 11, Michigan

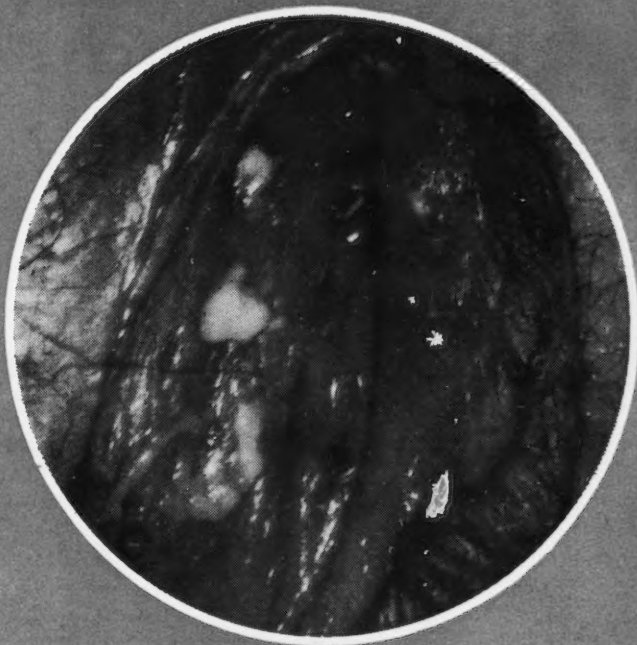
Protamide® Promptly Start

### ACUTE MYELOID LEUKÆMIA AFTER I<sup>131</sup> THERAPY

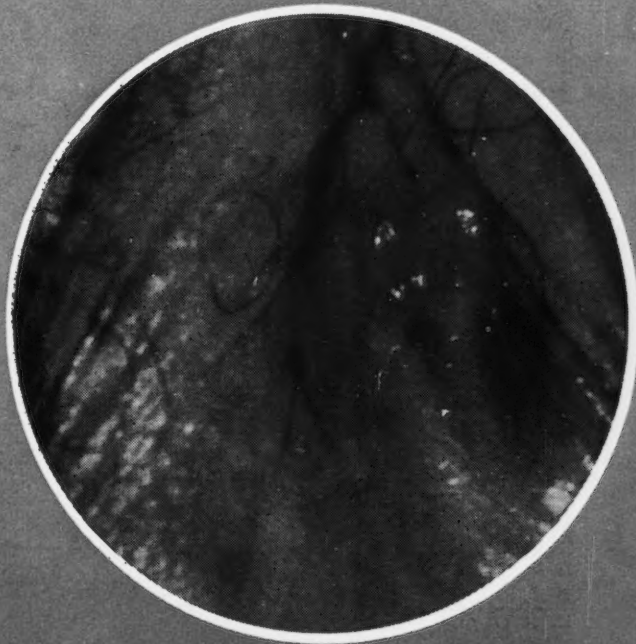
Sidelin and his colleagues of New York (*Science*, 123: 800, 1956) report two cases in which administration of iodine<sup>131</sup> for metastatic thyroid carcinoma appears to have produced an acute myeloid leukæmia. The two instances of acute leukæmia developed in 16 patients treated intensively with radioiodine for metastatic thyroid carcinoma. Administration began in 1943 and continued for from six months to nine years. The first patient had received 13 therapeutic doses from 1947 to 1951, to a total of 1,455 mc.; the second had received a total of 1,730 mc. of I<sup>131</sup> from 1948 to 1953. A causal relationship between radioiodine therapy and leukæmia is not definitely established by these cases, but the inference is strong that the events were related. It should be noted in both cases that the leukæmia was an acute one and its onset was delayed for four to five years after beginning radioiodine therapy.

(Continued on page 52)

monilia responds to



vaginal candidiasis (moniliasis) before treatment



same patient after treatment with Gentersal cream

therapy with

*Gentersal*  
CREAM

more effective

less irritating

less leakage (cream)

less staining

economical



in large tubes with  
15 disposable vaginal applicators.





## MEDICAL NEWS in brief

(Continued from page 50)

It is pointed out that it is unlikely that leukaemia will occur with increased incidence in patients treated for *hyperthyroidism* with radioiodine since the body radiation dose given for hyperthyroidism is very much lower than that used for patients with thyroid carcinoma.

## HISTOLOGICAL DIAGNOSIS OF CANCER

In a recent issue of *Lancet* (1: 701, 1956) Park discusses the histological diagnosis of cancer, pointing out that when the pathologist makes a histological diagnosis of cancer, he is not only giving a prognosis for the patient concerned, but he is also influencing the treatment of future patients, in that his decision forms part of the body of knowledge drawn on when further studies of incidence and curability of cancer are made. Park warns against the common fallacy of imagining that a pathologist giving a histological diagnosis of cancer is dispensing absolute truth. It is not possible, he says, to make an absolute diagnosis of cancer by microscopy because the causal agent, whatever it may be, cannot at present be seen in the lesions. He shows that, even under optimum conditions, histological assessment of malignancy is far from absolute and in the case of early cancer the histological criteria are even less satisfactory and of less practical value than one would like. In early cases there may be quite legitimate differences in interpretation, and these differences must inevitably affect figures for incidence of early cancer. The property of invasiveness, which determines the diagnosis of malignancy or otherwise, is particularly difficult to define and therefore to recognize at an early stage. Park suggests that pathologists should examine the histological section first and then read the clinical data. He also feels that the use of the words "histologically proved" applied to cancer implies only proving in the sense of testing or assessing and not in the legal sense of satisfying completely certain objectively defined criteria.

## HYPOPHYSECTOMY IN CANCER OF THE BREAST

Andersson of Copenhagen reports in the *Danish Medical Bulletin* (3: 51, 1956) his results in 20 cases in which the pituitary was removed in cases of advanced cancer of the breast with metastases. He points out that this operation is still in the experimental stage but results obtained so far are such as to encourage its continued use. It is a pity that patients chosen for the operation are those in whom all other methods have failed, so that it is difficult to assess the true

value of the extirpation. The patients in the present series were given cortisone 200 mg. immediately before operation intramuscularly and another 200 mg. immediately afterwards. They then received cortisone for several days by injection and later orally. In spite of the dosage, signs of adrenal insufficiency were observed during the postoperative course, but this was rapidly relieved by giving 100-200 mg. of hydrocortisone in glucose intravenously. Good results as judged by the fact that the patient's pain had completely vanished and the growth of metastases had been

## Introducing

"...THE

MOST

EFFECTIVE

## HEMATINIC...\*

The convincing evidence supporting the unique and advanced concept of cobalt-iron therapy in anemia is based on RONCOVITE research.

Roncovite is the only clinically proved preparation supplying cobalt in the therapeutic levels essential for the optimal hematologic response in anemia. The presence of cobalt as a specific bone marrow stimulant improves the utilization of iron and makes Roncovite totally different from any other hematinic preparation.

The safety and potency of Roncovite has been repeatedly confirmed.

Your own results will show why "The bibliography specifies RONCOVITE."

**DOSAGE:** One tablet after each meal and at bedtime.

**SUPPLIED:** Bottles of 100 red enteric-coated tablets. Each tablet contains 15 mg. cobalt chloride, 0.2 Gm. ferrous sulfate exsiccated.

retarded were obtained in nine out of 20 cases. In no case did metastases or the primary tumour disappear completely, but the remissions were so great that all patients ceased to use analgesics and most of them have lived a normal life since operation; only two, however, were fit for full work. When examined clinically three to four months after operation, the patients appeared to be mentally normal although a little slow in reaction. Externally they appeared normal, though their skin was a little pale. Salivary glands and breasts were

atrophic, but nothing else abnormal was noted.

In five cases it was shown that the hypophysectomy was incomplete, so that the remission rate may be calculated on the basis of 15 patients, making an incidence of good results of 60%. It was difficult to ensure total hypophysectomy, and even more difficult to persuade patients to submit to a second operation if the first was incomplete. The operation itself is a relatively minor one and can be carried out on patients who are bad operative risks. Where the pro-

cedure has proved only subtotal, subsequent x-ray treatment of the pituitary has been without effect. On theoretical grounds, the author prefers hypophysectomy to adrenalectomy.

### PROTRACTED JAUNDICE

From a study of 100 cases of protracted jaundice, defined as jaundice existing for three months or over, in the public wards of a general hospital, Steigmann and his colleagues (*Am. J. Gastroenterol.*, 25: 441, 1956) show that in a case of protracted jaundice, there is almost a 50-50 chance that the condition will be surgical (malignant or benign obstruction of biliary tract). Differential diagnosis proved more difficult than in the early cases of jaundice, and it was surprising to find that malignant extrahepatic obstruction was slightly the commonest cause of the complaint (29 cases). This was not true in private cases, where the commonest cause of protracted jaundice was a chronic hepatitis. In many cases of advanced malignant obstruction, ascites was also present. Fever was more commonly a sign in surgical cases, and was commonly associated with chills. Both sexes were equally represented in various disease groups, except that males tended to suffer considerably more frequently from malignant disease. Surgical jaundice was much commoner in white patients than in Negroes. Patients with surgical jaundice tended to be somewhat older, confirming the dictum that jaundice in older persons is more likely to be due to a cause which will require operation. Pruritus was not of much diagnostic value. A persistent and severe jaundice suggested malignant obstruction. The presence of definitely or questionably palpable masses in the epigastrium or upper quadrants, exclusive of the liver, was noted only in patients in the surgical group. A palpable gallbladder was a definite indication of surgical jaundice. Enlargement of the liver was not of particular diagnostic significance. A history of jaundice of one year or longer was most often obtained in medical cases.

High levels of total cholesterol and alkaline phosphatase in the blood usually indicated a surgical

(Continued on page 54)

## THE BIBLIOGRAPHY SPECIFIES

# RONCOVITE®

—THE ORIGINAL CLINICALLY PROVED COBALT-IRON PRODUCT—

Holly, R.G.: Anemia in Pregnancy, *Obst. & Gynec.* 5:562 (April) 1955.

Hill, J.M., et al.: Cobalt Therapy in Anemia, *Texas J. Med.* 51:686 (Oct.) 1955.

Rohn, R.J.; Bond, W.H., and Klotz, L.J.: The Effect of Cobalt-Iron Therapy in Iron-Deficiency Anemia in Infants, *J. Indiana M.A.* 46: 1253 (1953).

Holly, R.G.: Anemia in Pregnancy, Paper delivered before Amer. Congress of Obstetrics and Gynecology (Dec.) 1954.

Holly, R.G.: The Value of Iron Therapy in Pregnancy, *Journal Lancet* 74:211 (June) 1954.

Quilligan, J.J., Jr.: Effect of a Cobalt-Iron Mixture on the Anemia of Prematurity, *Texas J. Med.* 50: 294 (May) 1954.

Hamilton, H.G.: The Use of Cobalt and Iron in the Prevention of Anemia of Pregnancy. Paper delivered before the South. Med. Assn.

Rohn, R.J., and Bond, W.H.: Observations on Some Hematological Effects of Cobalt-Iron Mixtures, *Journal Lancet* 73:317 (Aug.) 1953.

Holly, R.G.: Studies on Iron and Cobalt Metabolism, *J.A.M.A.* 158: 1349 (Aug. 13) 1955.

Jaimet, C.H., and Thode, H.G.: Thyroid Function Studies on Children Receiving Cobalt Therapy, *J.A.M.A.* 158:1353 (Aug. 13) 1955.

Klinck, G.H.: Thyroid Hyperplasia in Young Children, *J.A.M.A.* 158:1347 (Aug. 13) 1955.

Tevetoglu, F.: The Treatment of Common Anemias in Infancy and Childhood with a Cobalt-Iron Mixture. Driscoll Foundation Children's Hosp., Corpus Christi, Texas (April) 1956.

Ausman, D.C.: Cobalt-Iron Therapy in the Treatment of Some Common Anemias Seen in General Practice, in press.

LLOYD BROTHERS, Pharmaceuticals, Ltd.

575 Niagara Boulevard, Ft. Erie, Ontario



Complete  
worknow  
available**PAEDIATRICS**

FOR THE

**PRACTITIONER**IN 3 VOLUMES AND INDEX  
TOGETHER WITH 1956  
SUPPLEMENTUnder the General Editorship  
of**WILFRED GAISFORD, M.D.,  
M.Sc., F.R.C.P.**Professor of Child Health and Paediatrics  
and Director of the Department of Child  
Health, University of Manchester

and

**REGINALD LIGHTWOOD,  
M.D., F.R.C.P., D.P.H.**Director of Paediatric Unit, St. Mary's  
Hospital Medical School, University of  
London, Physician to The Hospital for  
Sick Children, Great Ormond Street,  
London

So great a part of general practice is concerned with infants and children that many cases must inevitably be dealt with by the practitioner himself.

This work has therefore been designed to present clearly the diagnosis and up-to-date treatment of all the common disorders of infancy and childhood and also to deal briefly with rare conditions, giving sufficient information about them to enable the practitioner to discuss the various aspects with the parents or with a consultant. Descriptions of normal health, development and behaviour of children are included and special emphasis is given to the prevention of disease.

**Price \$58.00 per set, delivered  
(which includes 1956  
Supplement)**

*"Family doctors will consult these good books with profit to their patients and pleasure to themselves."*

British Medical Journal

**BUTTERWORTH & CO.  
(Canada) Ltd.**1367 Danforth Avenue  
Toronto 6**MEDICAL NEWS in brief**

(Continued from page 53)

condition. On the other hand, a low albumin or globulin level or a positive cephalin flocculation and thymol turbidity test was suggestive of medical jaundice.

**ETIOLOGY OF BRONCHIAL CARCINOMA**

From Basle, Dr. Gsell (*Deutsche med. Wchnschr.*, 81: 496, 1956) reports careful studies of a series of 180 cases of bronchial carcinoma in hospital. He found no relationship to former lung disease or general disease, to occupation or to social position. There was no evidence of a hereditary or familial disposition. As in so many other series, the interesting correlation between incidence of bronchial carcinoma and abuse of tobacco was discovered. In 150 men with a bronchial carcinoma, compared with 150 patients suffering from other diseases, the first group contained 84.7% of heavy smokers, whereas the control group contained only 32%. On the other hand, there were only 1.3% of non-smokers in the first group, compared with 19.4% in the second. A further survey of 1,000 out-patients and 3,735 doctors gave a similar finding to that in the control group. In nine cases out of 10 there was a squamous carcinoma. The adenocarcinomatous type of tumour of the lung was found to be equally common in males and females, and appeared to be unrelated to the use of tobacco.

**INTERNATIONAL CONGRESSES**

One of the objects of the Council for International Organizations of Medical Sciences (C.I.O.M.S.) is to co-ordinate as far as possible international congresses of medical and related sciences.

To achieve this co-ordination and avoid undesirable overlap, congress organizers are requested to inform the C.I.O.M.S. of their plans before fixing the dates of their meeting. Address: C.I.O.M.S., Unesco House, 19 Avenue Kléber, Paris 16, France.

**CHANGE OF JOURNAL NAME**

With the June issue, the name of the American journal *Antibiotic Medicine* was changed to *Antibiotic Medicine and Clinical Chemotherapy*. Its scope is being enlarged to include in addition to the usual material on the clinical use of antibiotics, original papers, abstracts and other news items on the clinical use of all therapeutic agents, such as the sulfonamides, vitamins, hormones, tranquilizers and others.

**AUSTRALIAN PRIZE IN SURGERY**

The Federal Council of the British Medical Association in Australia announces the Henry Simpson Newland Prize in Surgery, competition for which is open to any graduate of any medical school within the British Commonwealth. The prize consists of an award of £100 and a medal. The next award will be made in 1958 for the best essay, based on personal observation and experience, on "Factors Influencing the Prognosis in Acute Intestinal Obstruction". Essays must be delivered not later than November 23, 1957, to the General Secretary, Federal Council of the British Medical Association in Australia, 135 Macquarie Street, Sydney, Australia, from whom further information may be obtained.

**RESEARCH GRANTS FROM LIFE INSURANCE COMPANIES**

Grants to support a number of public health and medical research projects have been awarded by the life insurance companies doing business in Canada, through the Standing Committee on Public Health of the Canadian Life Insurance Officers Association.

One of the major grants is to the College of General Practice of Canada. It is a renewal grant and will be used in connection with the survey of general practice that the College is conducting across the nation.

The Canadian Tuberculosis Association also receives a grant for the continuation of the health

(Continued on page 58)

**"...14 of 18 patients  
with spasticity due to spinal  
cord lesions showed  
objective improvement..."**

# flexin\*

(Corydamine†, McNeil)

**the first orally effective lissive‡  
up to 6 hours' spasmolysis**

**Dosage:** Adults—1 to 2 tablets three  
or four times a day with food or immediately  
after meals. Children—1 tablet two to four  
times a day.

**Supplied:** Yellow scored tablets (250 mg.),  
bottles of 50.

(1) Rodriguez-Gomez, M., Velasco Rodriguez, A., and Dixon, J. L.:  
J.A.M.A. 160:752 (Mar. 3) 1956. (2) Amels, W.: J.A.M.A. 160:742  
(Mar. 3) 1956. (3) Abrahamson, E. H., and Baird, H. W., III: J.A.M.A.  
160:749 (Mar. 3) 1956. (4) Smith, E. T., Klon, K. N., Peak, W. R., and  
Hermann, I. F.: J.A.M.A. 160:743 (Mar. 3) 1956.

†U.S. PATENT PENDING

\*T.M.

‡**Lissive:** Relief of skeletal muscle spasm without interference  
with normal function.

McNeil Laboratories, Inc. • Philadelphia 32, Pa.  
Distributed through leading pharmacies by:  
VanZant & Company, 357 College Street, Toronto, Ontario.

**McNEIL**



**MEDICAL NEWS in brief**  
(Continued from page 54)

educational program conducted by the Newfoundland Tuberculosis Association. Financial assistance is extended to the Canadian Diabetic Association to assist in its program of organizing additional branches and extending its educational services.

In the field of medical research,

the Association announces grants to the Research Institute of the Hospital for Sick Children of Toronto, Queen's University Medical School, and the Montreal General Hospital.

At the Hospital for Sick Children, the grant has been made to the Research Institute to complete its study of virus infections by tissue culture methods. Diseases being examined include poliomye-

litis, Coxsackie disease, mumps, aseptic meningitis, skin diseases, German measles, and chickenpox.

At Queen's University a team composed of Drs. Sergio Bencosme, David Rosen and D. Laurence Wilson is studying the vascular complications of diabetes mellitus.


The grant to the Montreal General Hospital is to support a combined clinical and pathological study of cerebrovascular accidents. This study is to be conducted by Dr. D. A. Howell in the neurological and pathological departments of the Hospital under the direction of Drs. J. Pritchard and H. Elliott.

### HOME CARE PROGRAMS

The United States Public Health Service has recently issued a monograph (Public Health Monograph No. 35, obtainable from Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., at a cost of 65 cents). The material contained in this monograph is based on a joint project of the Public Health Service and the Commission on Chronic Illness, who arranged for a study of selected home care programs across the United States, and then correlated the data. The results demonstrate the feasibility of caring for indigent sick in their own homes, thus avoiding the high cost of hospital care, and also of using such programs as a teaching tool for medical students and interns. In addition to a general discussion of the study, there is considerable detail on programs from New York, Richmond, Virginia, Boston and Philadelphia.

### COURSE IN PÆDIATRIC ALLERGY

The New York Medical College announces a postgraduate course in pædiatric allergy, under the direction of Dr. Bret Ratner, Professor of Clinical Pædiatrics, at the New York Medical College, Flower and Fifth Avenue Hospitals, New York. The course will consist of 30 sessions, and cover the period November 7, 1956 to May 29, 1957. Sessions will occupy the whole of Wednesday and the fee is \$300. Further information from the Dean, New York Medical College, Fifth Avenue, New York 29, N.Y.



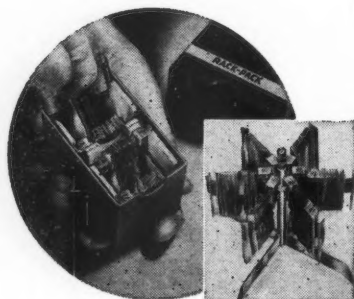
THEY HAVE TO BE  
**SHARP**

**...TO GET TO SURGERY**

#### BARD-PARKER RIB-BACK

#### DETACHABLE SURGICAL BLADES

must 'survive' a rigid series of progressive scientific tests to qualify as suitable for surgical use. Those that 'pass' are surgically perfect and uniformly sharp throughout their entire cutting edge. They will remain sharp and useful for longer periods . . . an important factor in economy when yearly volume of purchases is considered.



Specify RACK-PACK® packages in ordering gross and half gross quantities . . . eliminating unwrapping—handling—racking of individual blades. A time and labor saver for the O.R. personnel.

*It's Sharp*

Ask your dealer

**BARD-PARKER COMPANY, INC.**  
Danbury Connecticut, U.S.A.